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FloBoss™ 107 Flow Manager
LCD User Manual

Remote Automation Solutions

EMERSON
Process Management

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Chapter 1 – Introduction

This chapter describes the structure of this manual and presents an overview of the Liquid Crystal Display (LCD) for the FloBoss™ 107 Flow Manager.

1.1 Scope and Organization

This document serves as the user manual for the FloBoss™ 107 Flow Manager Liquid Crystal Display (LCD), which is intended for use with the FloBoss 107 Flow Manager ("FB107"). This manual describes how to install, configure, and use the FB107 LCD (the "Touchpad"). You initially access and configure the Touchpad using ROCLINK™ 800 Configuration software loaded on an IBM-compatible personal computer running Windows® 98, NT 4.0 (with Service Pack 6), 2000 (with Service Pack 2), or XP. Once configured, the Touchpad provides access to many FB107 system parameters and functions.

The chapters in this manual provide information in a sequence appropriate for first-time users. Once you become familiar with the device and the procedures, the manual becomes a reference tool.

This manual has the following major sections:

- *Chapter 1 – Introduction*
- *Chapter 2 – Configuration*
- *Chapter 3 – Using the Touchpad*

This manual assumes that you are familiar with the FB107 and its configuration. For more information, refer to the following specification sheet and manuals:

- *FloBoss™ 107 Flow Manager Instruction Manual* (Form A6206)
- *FloBoss™ 107 LCD Specification Sheet (5.5:LCD)*
- *ROCLINK 800 Configuration Software User Manual (for FB107)* (Form A6217)

1.2 Overview

The Touchpad enables you to access FB107 process and operational information and to view and change FB107 parameters. The Touchpad is a touch-sensitive liquid crystal display (LCD) screen. It fits behind a protective covering that is mounted to an enclosure (see *Figure 1-1*).

Figure 1-1. FB107 Touchpad, Enclosure-Mounted

Note: The Touchpad (with FB107) is designed to be mounted to an enclosure. Remote Automation Solutions has an enclosure designed for the Touchpad. If you choose to use your own enclosure, contact your local sales representative for a template and appropriate specifications.

The Touchpad communicates with the FB107 through a dedicated RS-232 connection located on the FB107 base unit (see *Figure 1-2*). The Touchpad's RS-232 connection is permanently configured with a baud rate of 19200, 1 stop bit, 1 start bit, 8 data bits, and no parity.

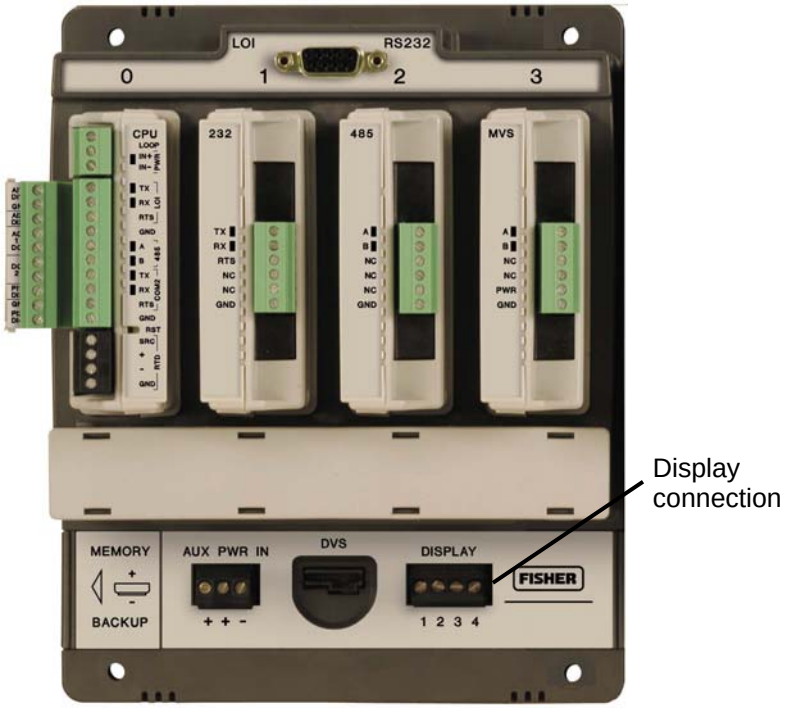

Figure 1-2. FB107 Base Unit, Display Connection

The Touchpad is a *transreflective* LCD. To maintain readability in direct sunlight, it reflects most of the sunlight and increases or decreases the brightness of its display based on the amount of light. This reduces your need to manually adjust the screen. It also has a backlight to increase readability during low-light use conditions or during critical operations (such as when you enter a PIN code). During idle periods, the backlight automatically enters a power-saving mode to conserve energy.

The Touchpad requires no manual calibration. Internal firmware provides the coordinates to assure display communications between the Touchpad and your FB107.

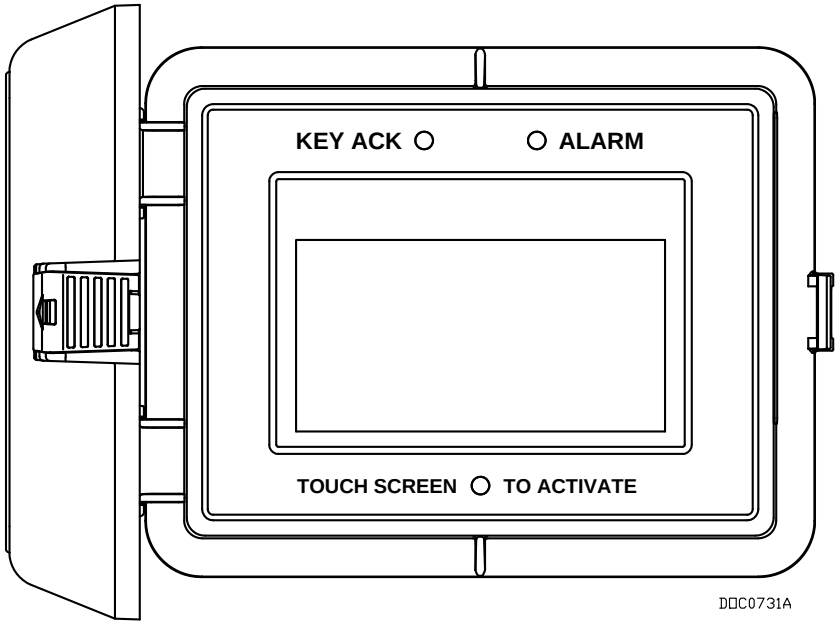

Figure 1-3. FB107 Touchpad with Open Cover

To use the Touchpad, you open its protective cover and touch the screen. Two light-emitting diodes (LEDs) at the top of the Touchpad provide visual signals on the Touchpad's operational status. The green LED indicates successful "touches": each time you touch the screen, the green LED flashes to verify that the Touchpad has acknowledged your entry. The green LED also can flash once every three seconds if you have set the power savings mode (see *Section 1.2.2*). The red LED signals alarm or integrity issues, and coordinates with other visual Touchpad clues (such as an on-screen asterisk, **i**, or **a**) to identify the area of concern. See *Chapter 3, Using the Touchpad*.

1.2.1 Display Mode

The Touchpad has two operational modes, **Normal** and **Basic List Mode** (BLM). When you open the cover, the Touchpad displays the "idle state display" (typically the Emerson Process Management logo):

Figure 1-4. Touchpad "Idle State" Display

When you touch the screen, you see either a list of system parameters or a number grid.

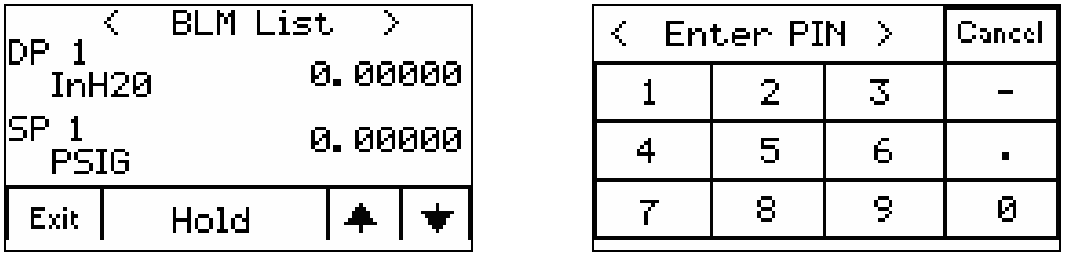

Figure 1-5. Initial Active Touchpad Displays

BLM mode (indicated by the on-screen **BLM List** label) provides an auto-scrolling list of read-only parameters, which displays up to 32 user-defined parameters (refreshed once per second) without requiring a log on process. (At any time you can interrupt the auto-display and log on through the Touchpad.)

Note: BLM mode also includes a dynamic chart mode. Technicians can touch a parameter and the Touchpad displays a dynamic chart related to that parameter. See *Chapter 3, Using the Touchpad*, for further details on this feature.

Normal mode requires a sign-in process before displaying any information. Refer to *Chapter 3, Using the Touchpad*, for further information.

1.2.2 Power Savings Mode

The Touchpad also provides an optional power-savings mode, which activates whenever the idle state display occurs. (This power savings mode works with either Normal or BLM display mode.) Select this option on the Advanced tab of the LCD Controller screen (see *Figure 1-6*).

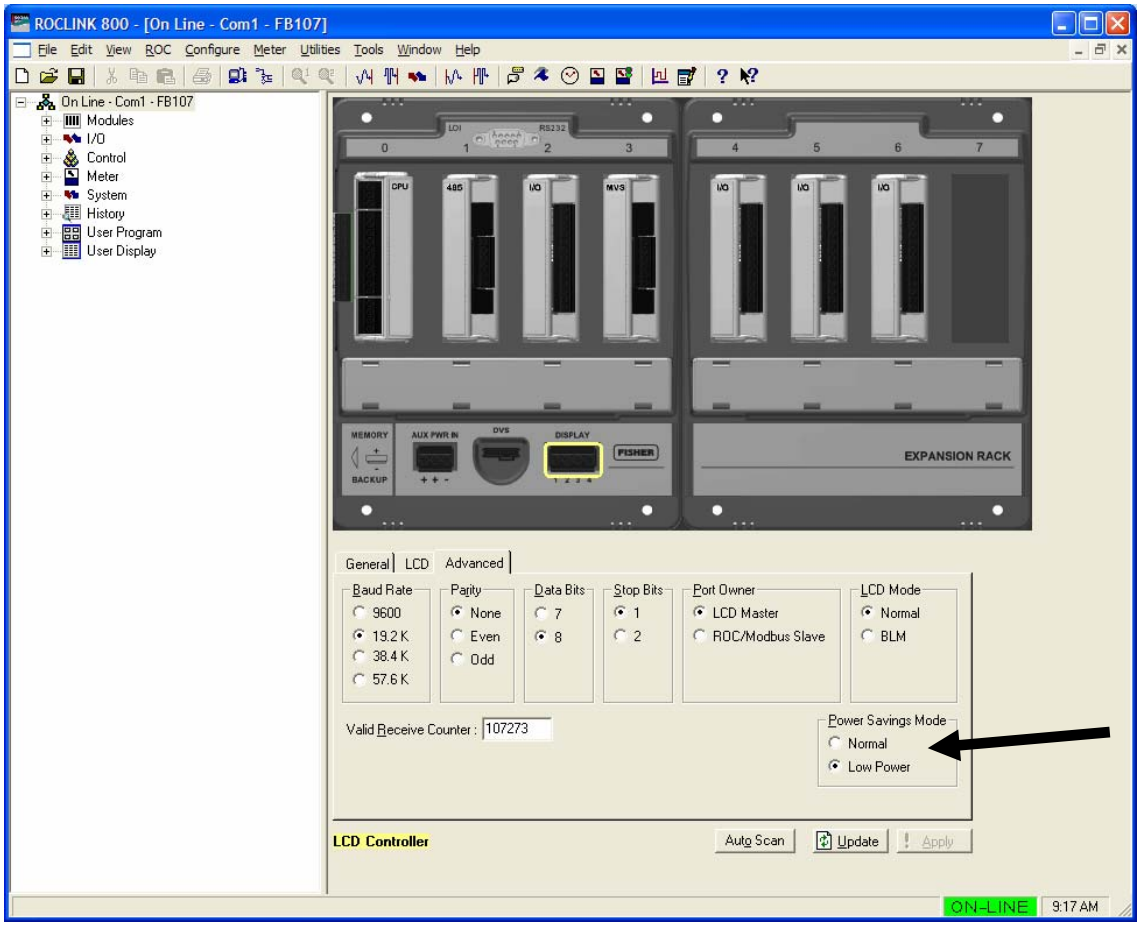

Figure 1-6. Power Savings Modes

When you click **Low Power** (and then click **Update** to apply the change), ROCLINK 800 performs a warm start and shuts down the Touchpad. While the Touchpad is blank, the green LED blinks once every three seconds to indicate the Touchpad is active. The Touchpad "awakens" when you touch it, and shows the idle state display. At that point log on and proceed to use the Touchpad normally. Whenever the Touchpad "times out" and would normally show the idle state display, the Touchpad is blank. This reduces the energy required to continually show the idle state display.

1.2.3 Touchpad and ROCLINK 800 Security

ROCLINK 800 security enables you can determine which user IDs can access which Touchpad features. You can define up to 16 user IDs, each of which can have read-only, read-write, or no access to the four user lists and standard features of the Touchpad. See *Section 2.6, Configuring Touchpad Security*.

Chapter 2 – Configuration

This chapter provides instructions for configuring Touchpad options.

The FB107 is factory-configured to accept the Touchpad. Until you connect the Touchpad to the FB107, the Display port displays an integrity ("red I") error (see *Figure 2-1, Section 2-1*).

After connecting the Touchpad, you can configure additional display options as well as Touchpad security (see *Sections 2-2 through 2-6*).

2.1 Configuring the Port Owner

1. Log onto and open ROCLINK 800. The FB107 graphic displays.

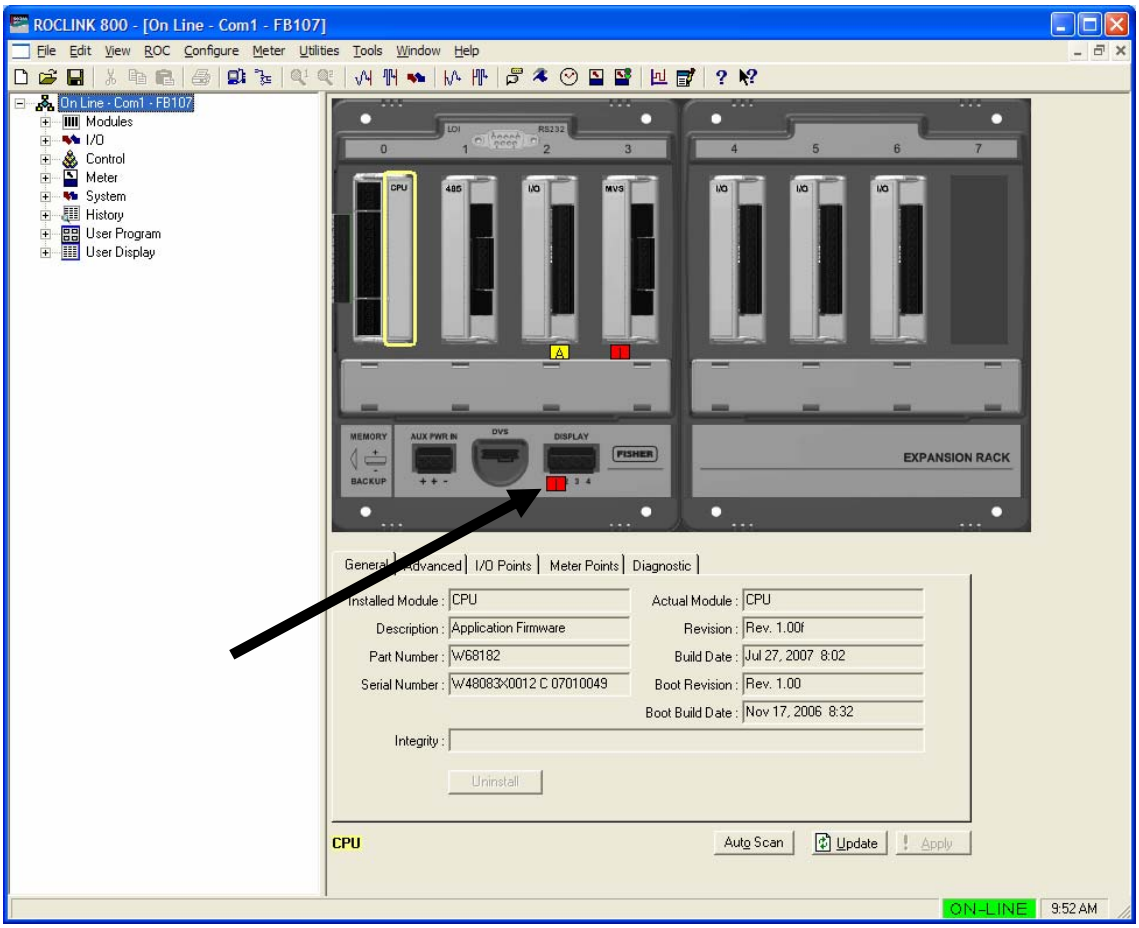

Figure 2-1. FB107 Graphic Display

2. Plug the connector for the Touchpad into the Display port on your FB107 (see *Figure 2-1*). The Touchpad activates and displays the message "Waiting for Comms…"

Figure 2-2. Touchpad Activation

3. Click the Display port on the FB107 graphic. The LCD Controller screen appears at the bottom of the FB107 graphic display.

Note that the FB107 graphic highlights the Display port and removes the integrity error on the display port.

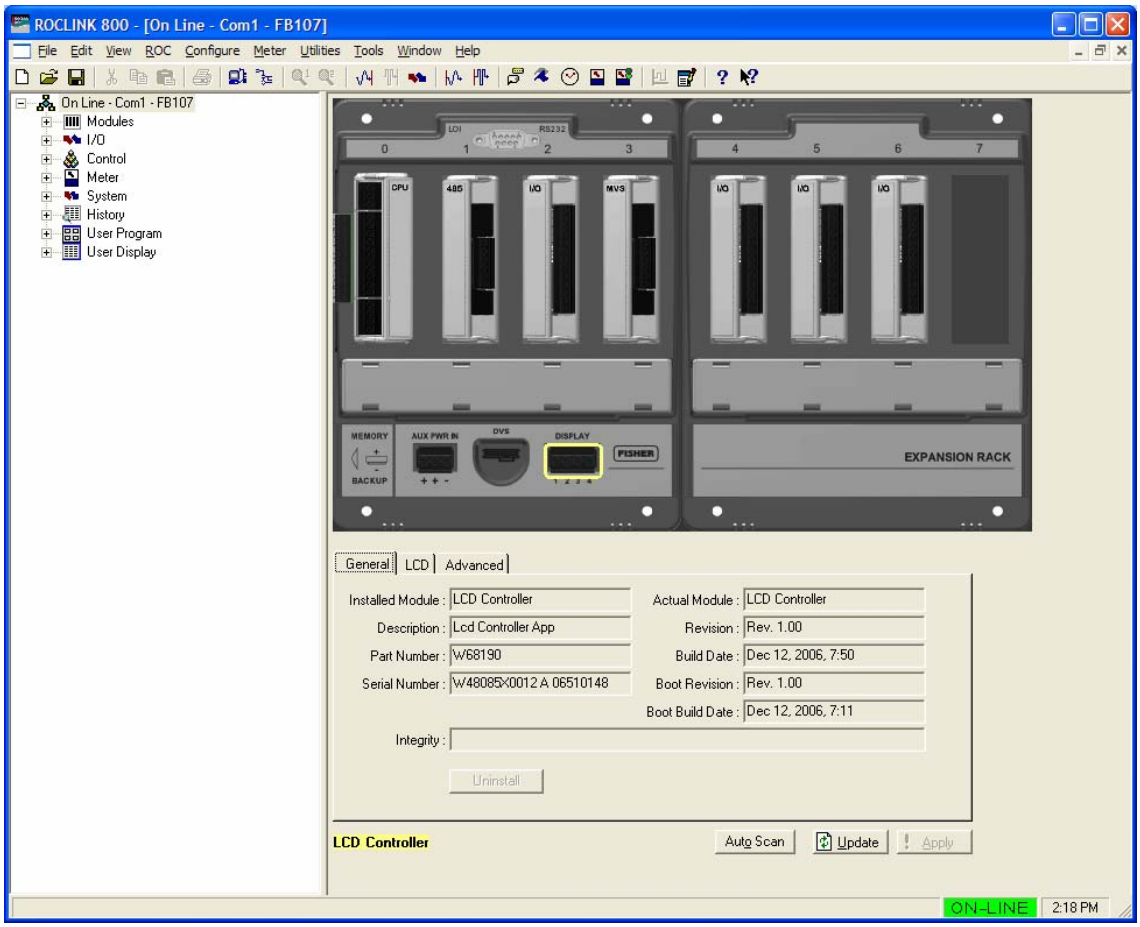

Figure 2-3. LCD Controller

4. Select the **Advanced** tab. The Advanced screen displays.

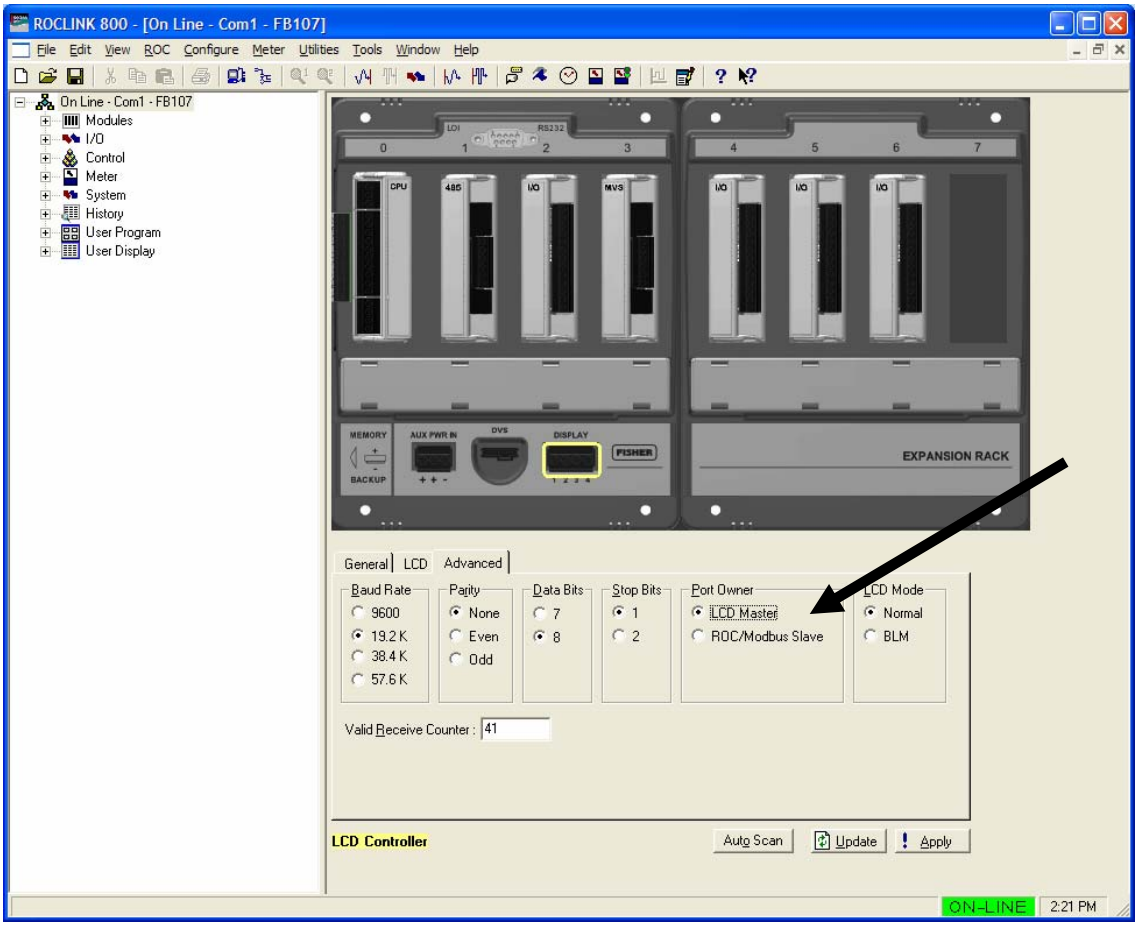

Figure 2-4. LCD Controller, Advanced tab

5. Verify that **LCD Master** in the Port Owner frame is the port owner (this is the default value).

Note: Figure 2-4 also shows the other default comm values (Baud Rate, Parity, Data Bits, Stop Bits, and LCD Mode) for the FB107.

6. Click **Apply** if you changed any values on this screen. ROCLINK 800 performs a warm start, and the Touchpad displays the Emerson Process Management logos.

Figure 2-5. Emerson Process Management Logos

Proceed to *Sections 2.2* through *2.6* to configure display options.

2.2 Configuring Touchpad Options

When configuring Touchpad options, you determine both the default display mode (*Sections 2.3* through *2.5*) and which user IDs may access which Touchpad features (*Section 2.6*).

You use the Configure option on the ROCLINK menu bar to select one of two possible default display modes for the Touchpad.

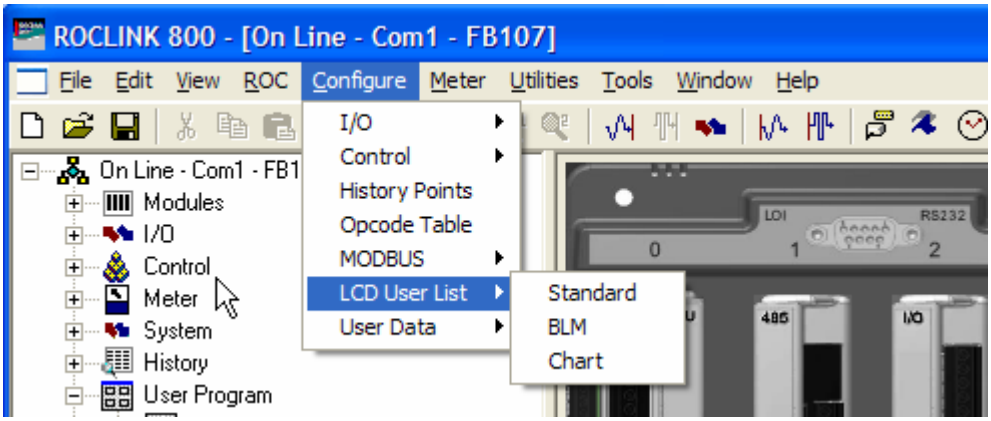

Figure 2-6. ROCLINK 800 LCD User List Configuration Options

Option	Description
Standard	Requires you to first log onto the Touchpad. Displays (based on pre-defined ROCLINK 800 security parameters) select system values and allows you modify select system parameters. **Note**: This is also called "Normal" mode.
BLM	Automatically displays up to 32 parameter values. Allows you (based on pre-defined ROCLINK 800 security parameters) to log onto the Touchpad and display select system values and modify select system parameters.
Chart	Requires you to first log onto the Touchpad. Displays, in a chart recorder format, historical or dynamic values for up to 16 user-defined parameters. **Note**: For convenience, a dynamic charting function is available for the parameters displayed in basic list mode. However, this is not the full-function charting facility.

2.3 Configuring Basic List Mode (BLM)

In Basic List Mode (BLM), the Touchpad displays up to 32 parameter values, automatically scrolling through the list at a speed you define. (The Touchpad displays up to two parameters per screen.) This mode allows service technicians to quickly review a dynamic display of current values without logging onto the Touchpad.

1. Select the **Advanced** tab of the LCD Controller screen. The Advanced screen displays.

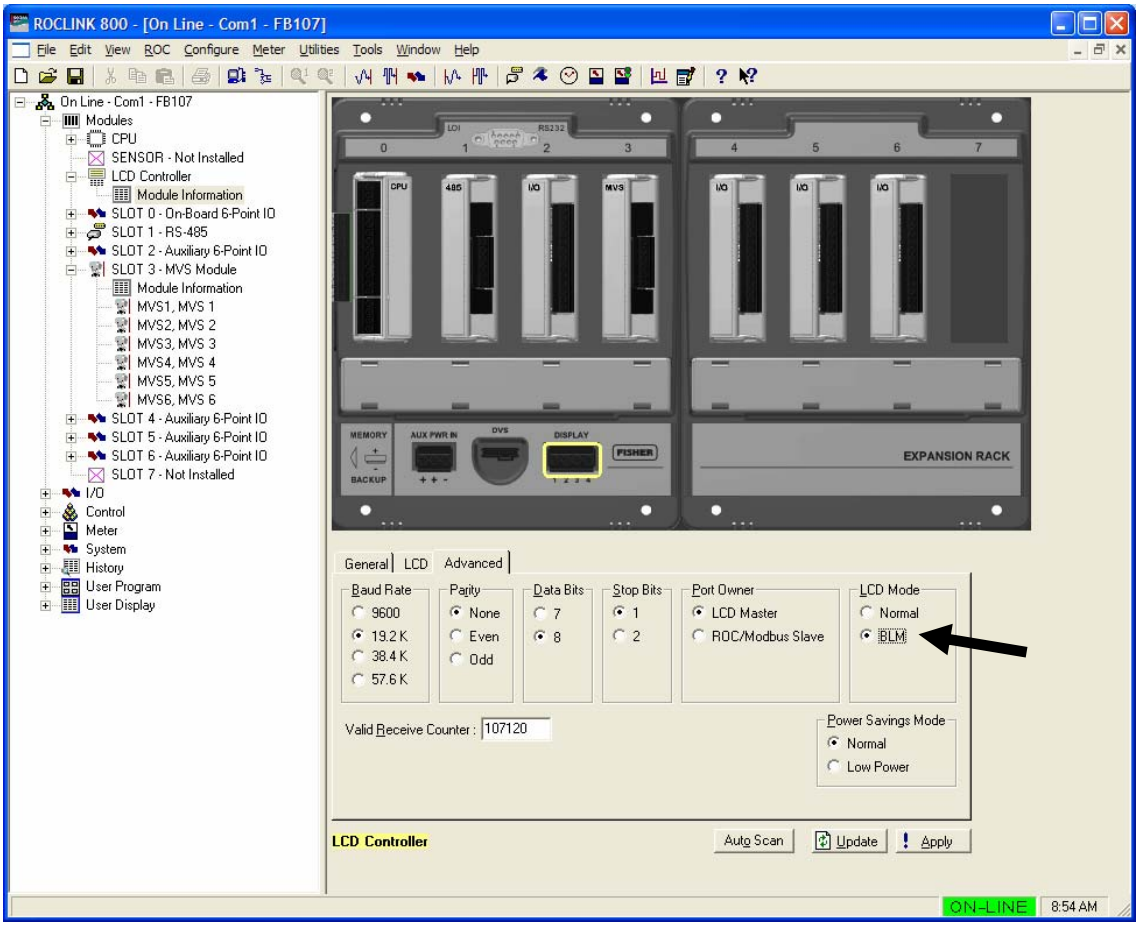

Figure 2-7. ROCLINK 800 LCD User List Configuration Options

2. Select **BLM** in the LCD Mode frame. Click **Apply** to save your change. ROCLINK 800 performs a warm start.
3. Select **Configure** > **LCD User List** > **BLM** from the ROCLINK 800 Menu bar. The LCD User List – BLM screen displays.

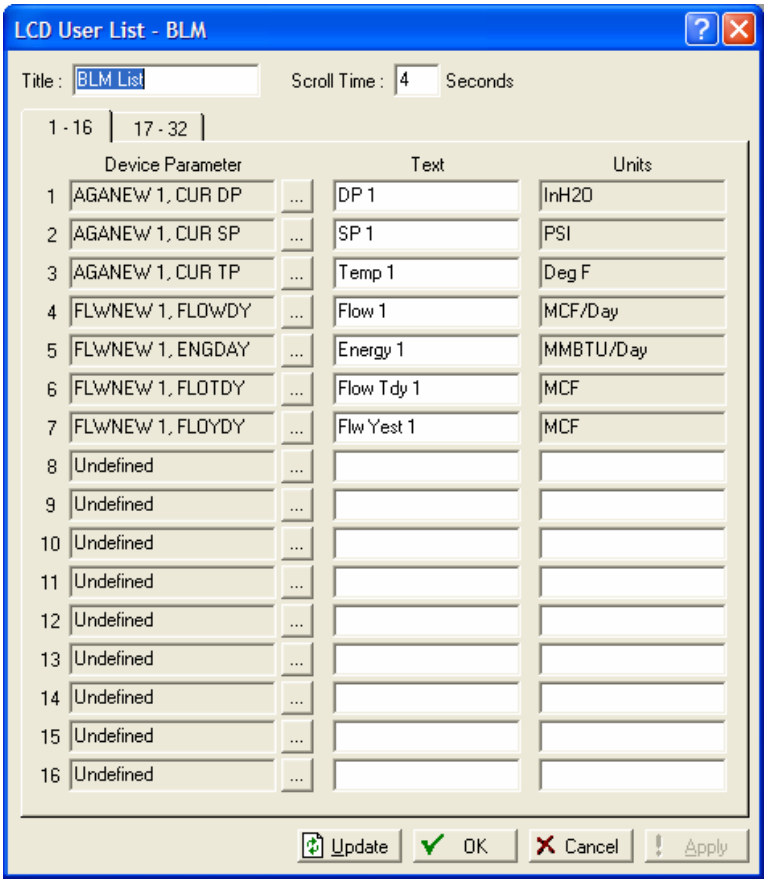

Figure 2-8. LCD User List – BLM

4. Complete the following fields to define the contents of the BLM list.

Field	Description
Title	Sets a 10-character alphanumeric identifier for the list.
Scroll Time	Indicates the number of seconds the Touchpad displays each parameter set before scrolling to the next parameter set. (The Touchpad displays up to two parameters at a time.) Valid values are **0** (do not scroll) to **255**; the default is **4**. **Note**: If you set this value to **0**, you must use the ↑ and ↓ keys on the Touchpad to manually scroll through the parameters defined in the list.
Device Parameter	Sets the parameter that you want to display on the Touchpad. Click **…** to display a Select TLP screen you use to define the parameter.
Text	Sets a 10-character alphanumeric identifier for the parameter.
Units	Shows the engineering units for the associated parameter.

5. Click the **17-32** tab to define 16 additional parameters.

6. Click **Apply** if you make any changes to this screen.
7. Click **OK** to close the LCD User List – BLM screen.
8. Proceed to *Chapter 3, Using the Touchpad*.

2.4 Configuring Standard or Normal Mode

In Standard or Normal mode, the Touchpad displays the Emerson Process Management logos. When you touch the screen, a logon grid displays. You then enter a PIN number to log on to the Touchpad.

1. Select the **Advanced** tab of the LCD Controller screen. The Advanced screen displays.

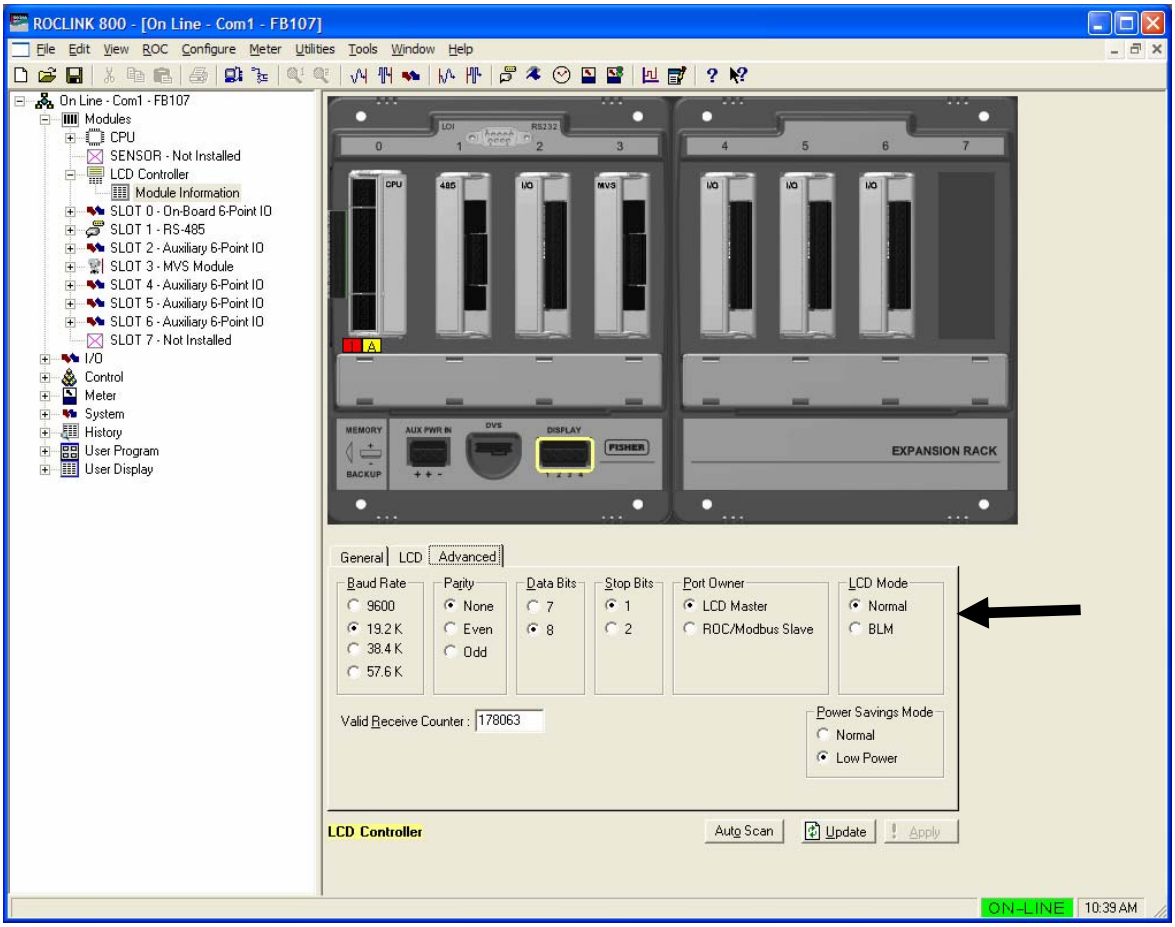

Figure 2-9. ROCLINK 800 LCD User List Configuration Options, Advanced tab

2. Verify that **Normal** is selected in the LCD Mode frame. (This is the factory default value for the Touchpad.)
3. Click **Apply** if you have needed to change the setting. ROCLINK 800 performs a warm start. The Touchpad now starts in Normal mode.

4. Proceed to *Chapter 3, Using the Touchpad*.

2.5 Configuring Chart Mode

Chart mode allows the Touchpad to emulate a chart recorder. After you log on normally, **Chart** is one of the options displayed on the Main Menu:

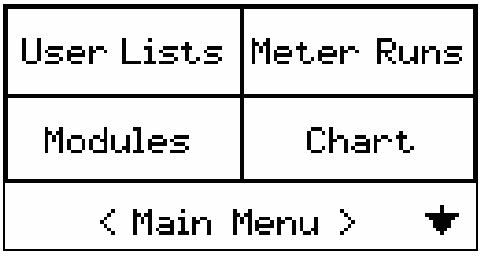

Figure 2-10. Touchpad Main Menu

The Touchpad can display up to 16 historic or dynamic system values. Use this procedure to define the displayed values.

1. Select **Configure** > **LCD User List** > **Chart** from the ROCLINK 800 Menu bar. The LCD User List – Chart screen displays.

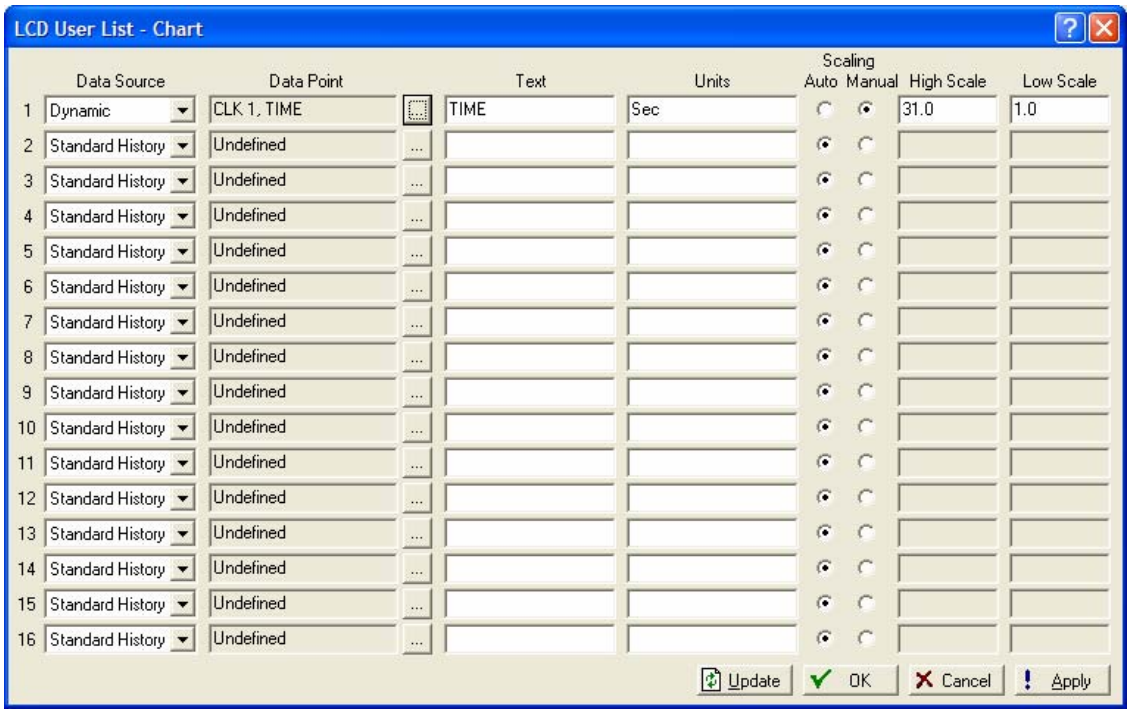

Figure 2-11. LCD User List - Chart

2. Complete the following fields to define the chart display values.

Field	Description	
Data Source	Sets the source for data included in the chart. Valid values are:	
	Standard History	Sets a standard history point to chart. Click **…** to open a Select History Point dialog box you can use to select a valid standard history point.
	Extended History	Sets an extended history point to chart. Click **…** to open a Select History Point dialog box you can use to select a valid extended history point.
	Dynamic	Sets a dynamic data point to chart. Click **…** to open a Select TLP dialog box you can use to select a valid TLP.
Data Point	Shows the data point selected.	
Text	Sets a 10-character alphanumeric identifier for the data point.	
Units	Shows the engineering units for the associated parameter.	
Scaling	Indicates whether the system applies automatic or manual value limit factors to the charted results. Valid values are **Auto** (apply automatic values) or **Manual** (apply defined values).	
HighScale	Sets the high value for the data point. **Note**: This field is available only if you select **Manual** as a scaling option.	
Low Scale	Sets the low value for the data point. **Note**: This field is available only if you select **Manual** as a scaling option.	

3. Click **Apply** if you make any changes to this screen.
4. Click **OK** to close the LCD User List – Chart screen.
5. Proceed to *Chapter 3, Using the Touchpad*.

2.6 Configuring Touchpad Security

Touchpad security enables you to selectively restrict or permit access to Touchpad functions for up to 16 user IDs you define. To do this, you use ROCLINK 800's Device Security screens (*Figures 2-12* and *2-13*). You can define an ID which can access all or only one user list or just the Touchpad's "standard lists." Additionally, the ID can have edit capability or just view capability. You define IDs and their accesses to meet your organization's needs.

1. Select **ROC** > **Security** from the ROCLINK 800 Menu bar. The Device Security screen displays.

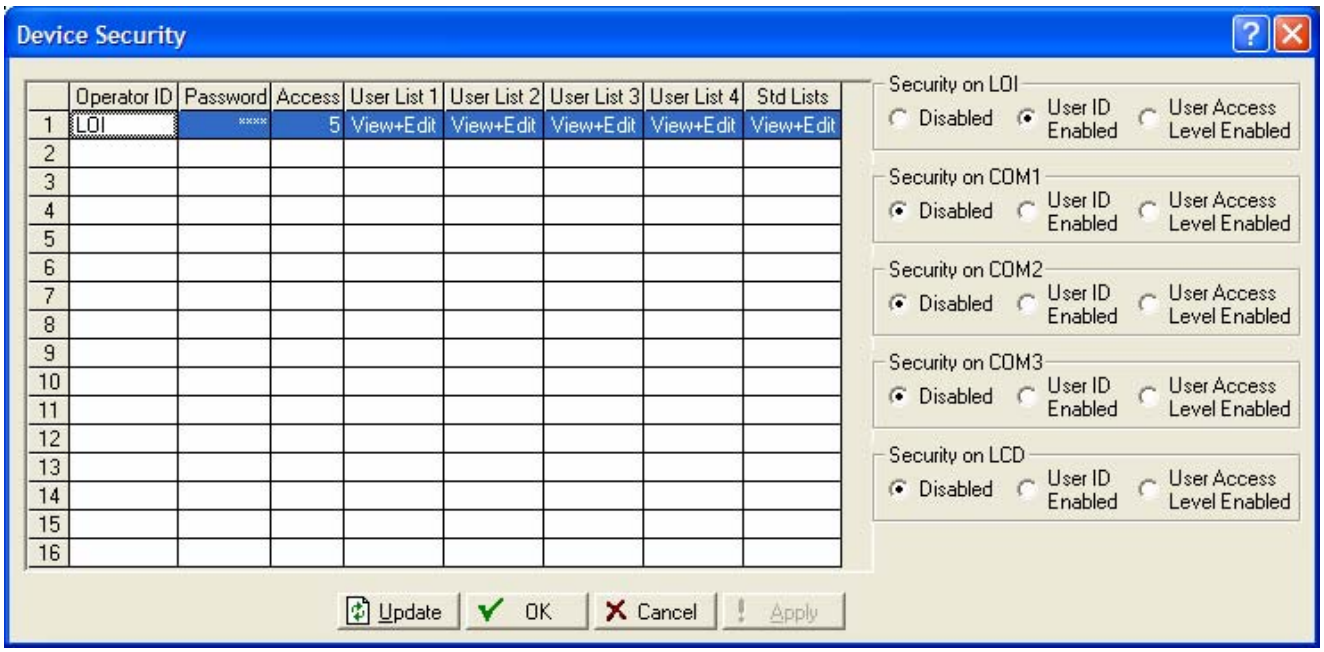

Figure 2-12. Device Security

Note: Use only the **left-hand** side of this screen to define Touchpad security. The right-hand fields (Security on LOI, Security on COM1, etc.) **do not** apply to the Touchpad (but do apply to security levels on the FB107). Leave the Security on LCD field disabled. It applies **only** if you are connecting a display other than the LCD from Remote Automation Solutions. If that is the case, contact Product Support.

2. Click in the first empty Operator ID field. The Device Security dialog box displays.

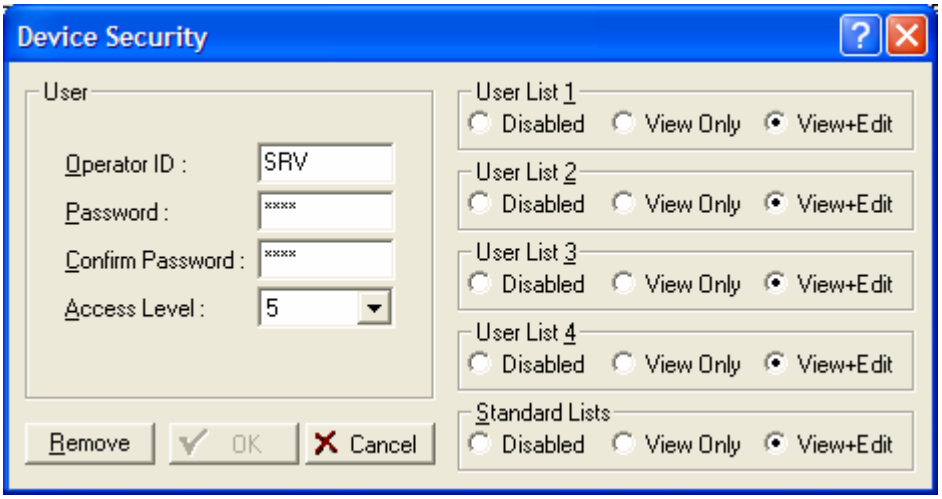

Figure 2-13. Device Security, User Level

3. Complete the following fields to define the access permissions for the new user ID.

Field	Description	
Operator ID	Sets the three alphanumeric characters for the password.	
Password	Sets the four-digit password associated with this ID.	
Confirm Password	Confirms the four-digit password associated with this ID. **Note**: The contents of this field **must** match the contents of the Password field.	
Access Level	This field **does not** apply to the FB107 Touchpad.	
User List 1 through 4	Indicates whether the ID can access the user-defined User Lists. Valid values are:	
	Disabled	Removes the user list from the displayed options.
	View Only	Displays the user list but does not allow edits to displayed data.
	View+Edit	Displays the user list and allows edits to displayed data.
Standard Lists	Indicates whether the ID can access the standard Touchpad functions (that is, the options on the Main Menu screen: Meter Runs, Modules, Charts, PID, System, and Log Off). Valid values are:	
	Disabled	Removes the user list from the displayed options.
	View Only	Displays the user list but does not allow edits to displayed data.
	View+Edit	Displays the user list and allows edits to displayed data.

4. Click **OK** to apply these edits. The system displays the updated Device Security screen.

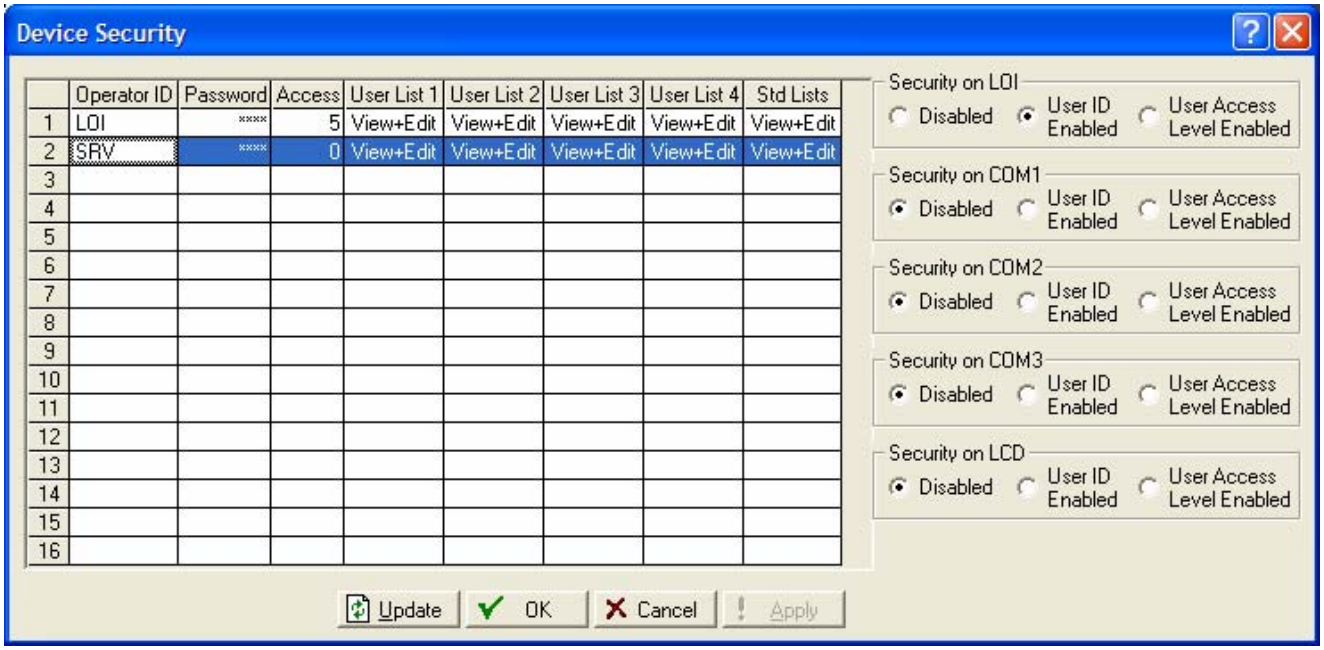

Figure 2-14. Device Security

5. Repeat steps 2 and 3 to add up to 14 more IDs.

6. Click **OK** to display the FB107 graphic.

Chapter 3 – Using The Touchpad

This chapter describes the day-to-day use of the Touchpad.

3.1 Touchpad Screens

The Touchpad uses several major screen formats to present information. Included are menu screens, parameter screens, and dynamic charts.

Note: System security settings controls which options display on your Touchpad and whether you can edit parameter values. Refer to *Section 2.6, Configuring Touchpad Security*, for further information.

3.1.1 Menu Screens

Menu screens are basically two or more options placed in a grid. Typically, an **Exit** option may appear in the menu's lower left corner. A menu label (such as **Main Menu** or **Slot #0** in *Figure 3-1*) is centered between brackets, and arrows (to access additional menu options) may appear in the right corner of the menu. *Figure 3-1* shows two examples of menu screens.

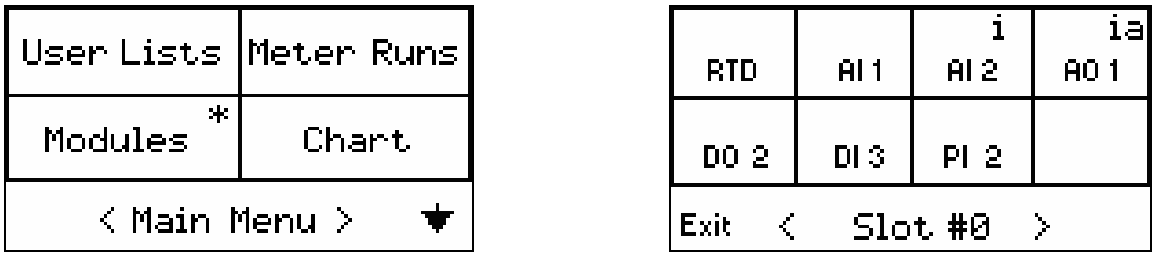

Figure 3-1. Sample Menu Screens

Touching an option on the menu screen's grid may lead to another menu or to a parameter screen.

Notes:

- A blinking asterisk (*) in the upper right corner of a menu box (as in the Modules option in *Figure 3-1*) indicates an integrity or alarm issue in this module.
- A blinking **i**, **ia**, or **a** in the upper right corner of a menu box (as in AI 2 and AO 1 in *Figure 3-1*) indicates an integrity or alarm issue with this point.

3.1.2 Parameter Screens

Parameter screens primarily display values, but provide other ways to display information. A label typically appears at the top of a parameter screen indicating where that parameter belongs. The bottom of the screen contains two or more boxes, usually providing an **Exit** option on the left-hand side, a **Hold** option (to prevent the screen from auto-scrolling to the next set of parameters) in the center, and ↑ and ↓ options on the right-hand side so you can move more quickly from parameter to parameter (see *Figure 3-2*).

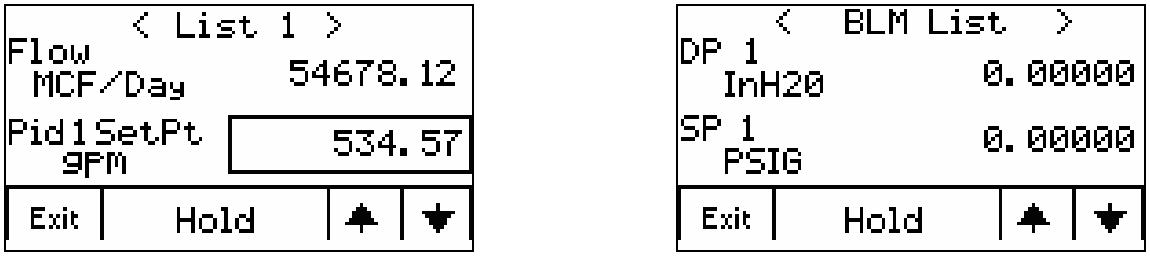

Figure 3-2. Sample Parameter Screens

Up to two parameter values display in the center of the screen. The values are dynamic and refresh each second.

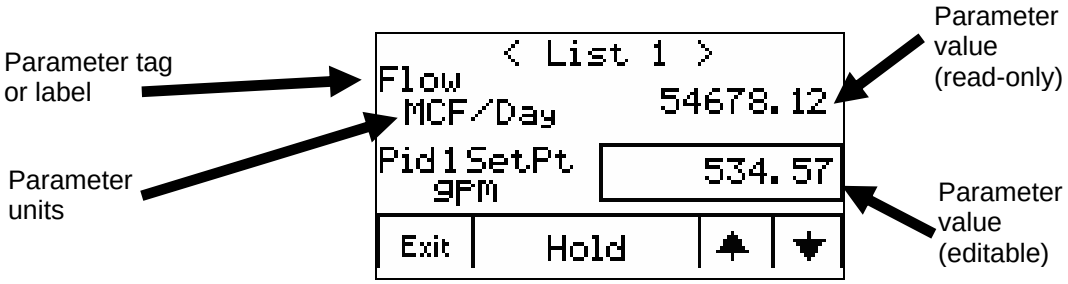

Figure 3-3. Sample Parameter Screen

Parameter values are usually read-only. However, you can edit a value in a box (as in the case of **534.57** in *Figure 3-3*). Touch the box to display a numeric keypad screen (*Figure 3-4*).

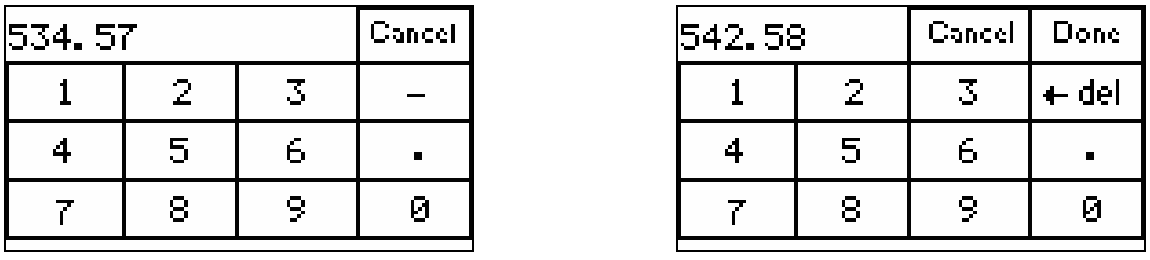

Figure 3-4. Numeric Keypad

As you enter a new value, the numeric keypad changes (as shown in *Figure 3-4*). When you are finished, touch **Done**. The Touchpad displays a screen to confirm the new value (see *Figure 3-5*).

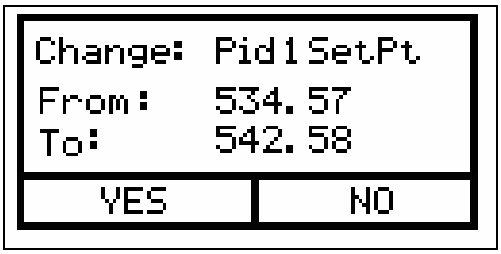

Figure 3-5. Edited Parameter

When you touch **Yes**, the new value appears in the parameter screen's editable field.

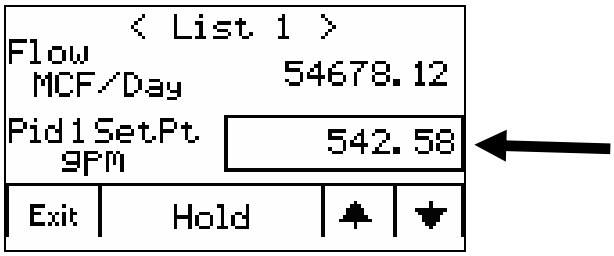

Figure 3-6. Edited Parameter

Note: The Touchpad uses this "value inside a box" signal extensively to indicate a field you can edit.

Finally, you can touch the parameter tag on any parameter screen to display a chart screen that dynamically displays the values of that parameter (see *Section 3.1.3*).

3.1.3 Dynamic Charts

The Touchpad can display any parameter you select in a dynamic "chart recorder" format. Touch the label or units on a parameter screen to display the chart. Charting begins from the moment of touch and continues either for 30 minutes or until you touch **Exit**.

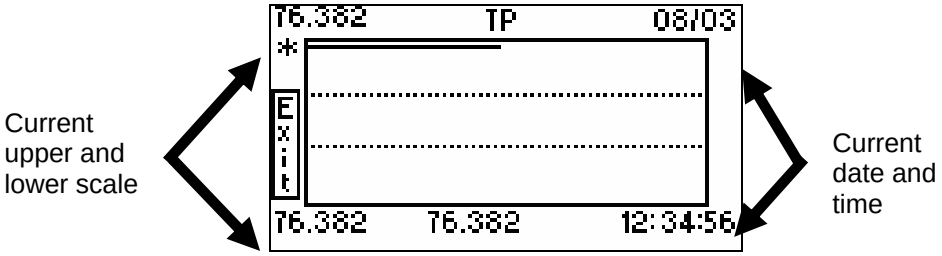

Figure 3-7. Sample Dynamic Chart

The parameter label displays in the upper center of the screen, and alternates with a display of the units every four seconds. The current parameter value displays in the lower center of the screen. The current date appear in the upper right-hand corner of the screen. The current time appears in the lower right-hand corner of the screen. The values in the upper and lower left-hand corners of the screen display the chart's current scale. You can modify the scale by touching the asterisk (*) just below the upper scale value. The Touchpad displays a numeric keypad you use to define first a new upper range, then a new lower range.

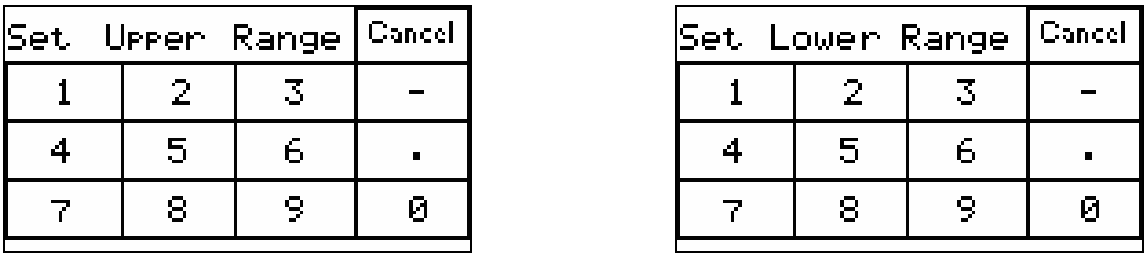

Figure 3-8. Chart Scale Ranges

When you exit the numeric keypads, the parameter screen reflects the new values.

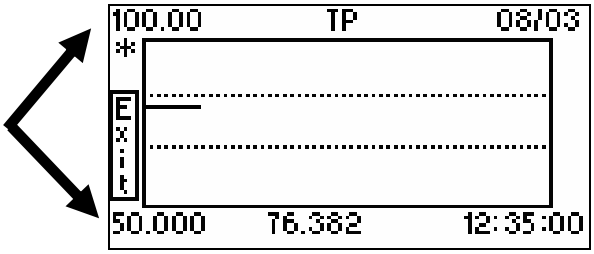

Figure 3-9. Revised Scales

Note: These new values are valid **only** for the current viewing. The Touchpad restores the original scale values when you exit the parameter screen.

3.1.4 Operational Screens

The Touchpad provides a complement of message screens, confirmation screens, and other screen types to support system processing. Refer to *Sections 3.2 through 3.9* for examples of these screens.

3.1.5 Touchpad Time Out

For both security and to save power, the Touchpad display goes blank (or "times out") at specific intervals if left untouched. Touching a timed-out screen restores the idle state display (see *Figure 1-4*), from which you must log on again.

Screen	Display Duration
PIN (*Figure 3-12*)	1 minute
Menu (*Figure 3-1*)	10 minutes
Calibrate (*Figure 3-43*)	60 minutes
Plate Change (*Figure 3-42*)	30 minutes

You can also access a power savings mode to enable the Touchpad to time out more frequently (see *Section 1.2.2*).

3.2 Logging On

In daily operation, the Touchpad normally displays the Emerson Process Management logo in its "idle" or waiting state.

Figure 3-10. Idle State Display

1. Touch the screen. A second screen displays, depending on the mode you've selected (Normal or BLM). If you've configured BLM mode, the Touchpad begins to auto-scroll through the parameters you defined on ROCLINK 800's LCD User List – BLM screen (see *Section 2.3*. If you've configured Normal mode, the Touchpad displays a log on screen:

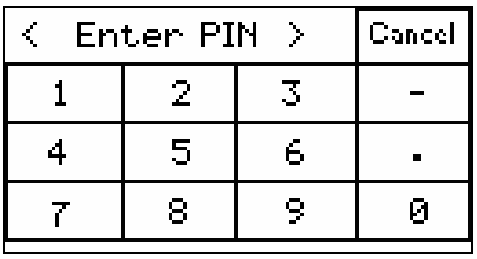

Figure 3-11. Log On

Note: The Touchpad displays this log on screen for 60 seconds. If you do not enter a PIN in that time, the idle state screen displays.

2. Enter a valid log on PIN. As you touch each number, the Key Acknowledgement LED (Key Ack, *Figure 1-3*) should blink green and the Touchpad reverses the numeric image (see *Figure 3-12*).

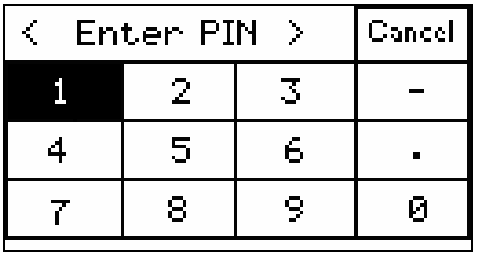

Figure 3-12. Touched Value

If you enter an incorrect PIN number, the Touchpad displays a message. Click **OK** and re-enter the PIN.

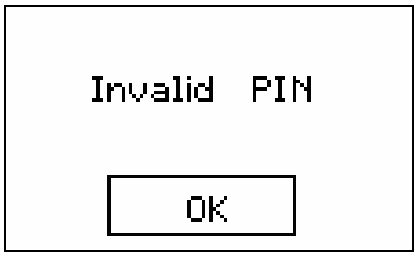

Figure 3-13. Invalid PIN Message

Note: The default PIN is **1000**. If you have disabled that PIN or replaced it with another PIN to establish security for your organization, use those values with the Touchpad.

Figure 3-14 provides a map of all Touchpad options.

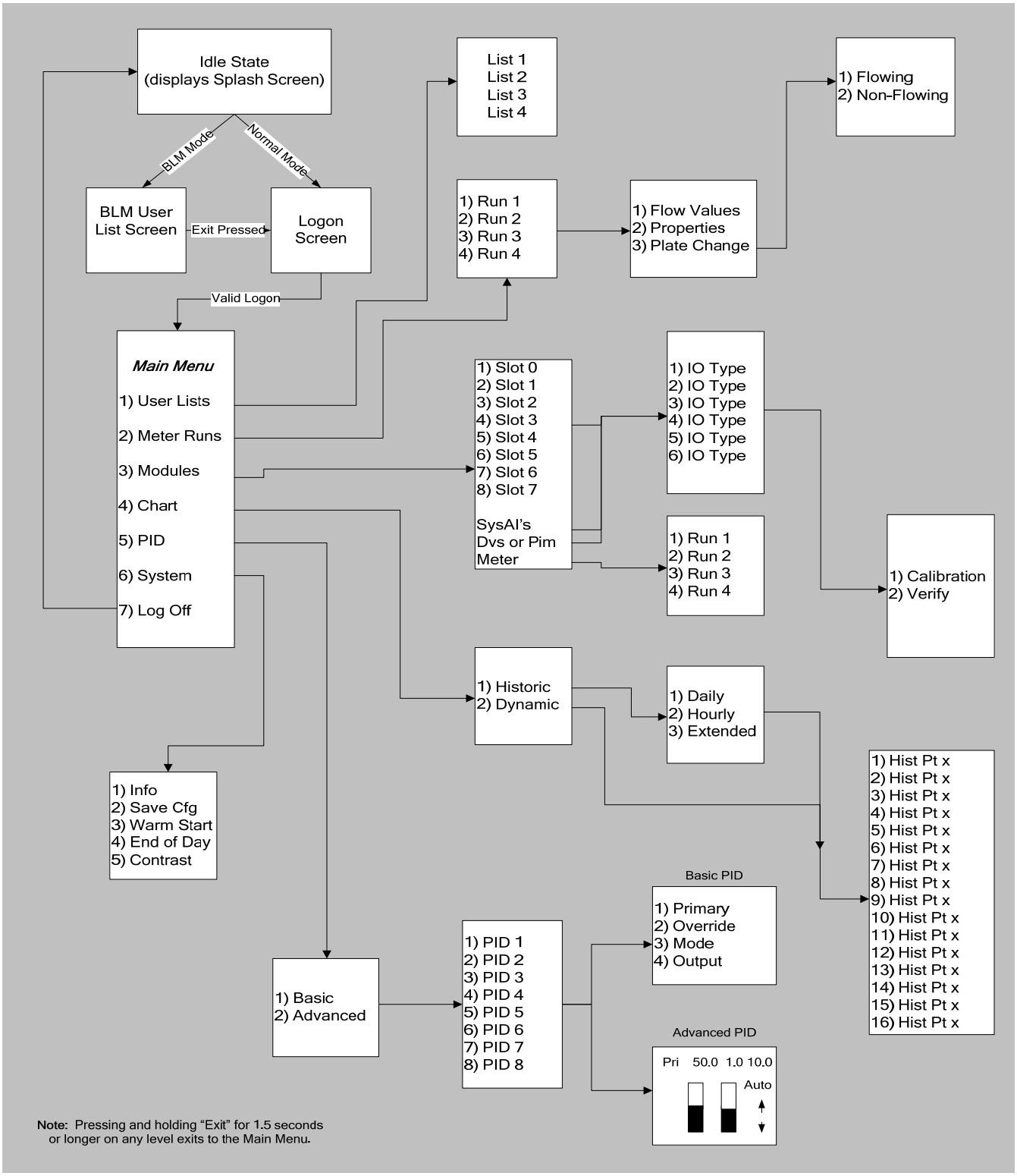

Figure 3-14. Touchpad Options Map

Once you enter a valid PIN on the log on screen, the Touchpad's Main Menu screen displays:

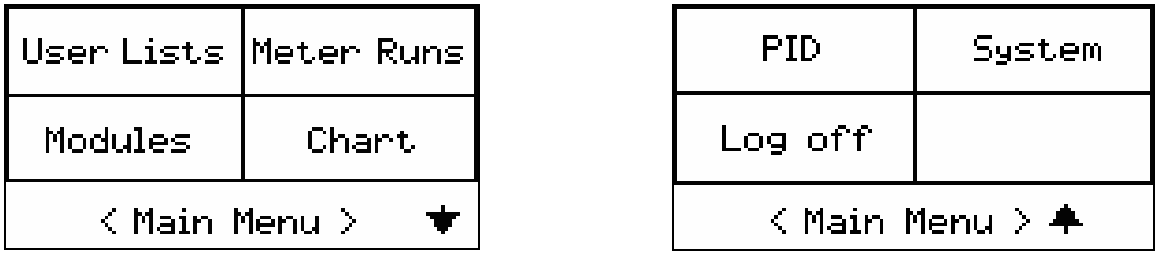

Figure 3-15. Touchpad Main Menu

Option	Description
User Lists	Displays a list of 16 parameter values. You can define up to four lists, for a total of up to 64 parameters. **Note**: Configure these values using the LCD User List screen.
Meter Runs	Displays values for up to four meter runs. **Note**: These are **read-only** values. You configure the number of valid meters on the Points tab on the Device Information screen (**ROC** > **Device Information**) and the meter content itself on the Meter Setup screen (**Meter** > **Setup**).
Modules	Displays parameter values associated with each module installed in the FB107.
Chart	Displays historical or dynamic information in a chart format. **Note**: These are **read-only** values. You define the format, scale, and content of the charts using the LCD User List – Chart screen (**Configure** > **LCD User List** > **Chart**).
PID	Displays and permits changes to defined PID parameters. . **Note**: You must first define PID parameters on the PID Loop screen (**Configure** > **Control** > **PID Loop**).
System	Enables you to access and modify some general system parameters.
Log Off	Logs you off the Touchpad; redisplays the idle logos screen.

Sections 3.3 through *3.9* discuss these options.

3.3 User Lists

User lists are groups of up to 16 system parameters. You can define up to four user lists, for a total of 64 parameters. You first define the user lists in ROCLINK 800 and update your ROCLINK 800 configuration file. When you next log onto the Touchpad, the User List menu option reflects those changes. Alternately, you can log off the Touchpad and log back on to see your changes.

To define user lists:

1. Select **Configure** > **LCD User List** > **Standard** on the ROCLINK 800 menu bar. The LCD User List screen displays.

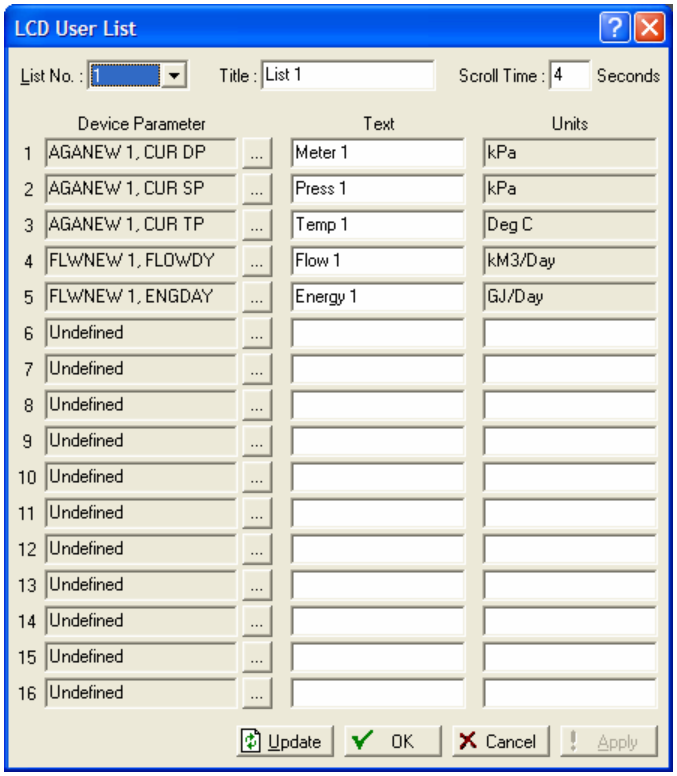

Figure 3-16. LCD User List

2. Complete the following fields to define the contents of each user list.

Field	Description
List No.	Sets the number of the LCD User List you want to configure. Click ▼ to display all defined lists. You can define up to four user lists.
Title	Sets a 10-character alphanumeric identifier for the user list.

Field	Description
Scroll Time	Indicates the number of seconds the Touchpad displays each parameter set before scrolling to the next parameter set. (Typically the Touchpad displays two parameters at a time.) Valid values are **0** (do not scroll) to **255**. **Note**: If you set this value to **0**, you **must** use the ↑ and ↓ keys on the Touchpad to manually scroll through the parameters defined in the list.
Device Parameter	Sets the parameter that you want to display on the Touchpad. Click **…** to display a Select TLP screen you can use to define the parameter.
Text	Sets a 10-character alphanumeric identifier for the parameter.
Units	Shows the engineering units for the associated parameter.

3. Click **Apply** if you make any changes to this screen. To define additional lists, repeat step 2.
4. Click **OK** to close the LCD User List screen.

Once you have defined your user lists and sent the changes to the Touchpad, you can view them on the Touchpad and, if appropriate, edit the values.

Note: These steps assume you have successfully logged onto the Touchpad and are starting at the Main Menu.

1. Touch **User Lists** on the Touchpad. The User List menu displays.

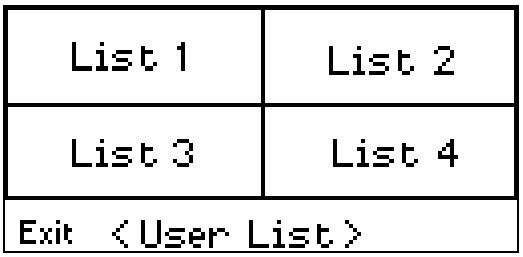

Figure 3-17. User List Menu

2. Touch the number of a User List. A parameters screen displays.

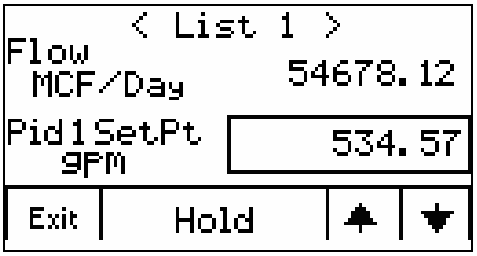

Figure 3-18. User List Parameters)

3. The Touchpad automatically scrolls through the defined values in the user list. You can touch **Hold** to pause the display (and restart the scroll by pressing **Scroll**), or touch ↓ or ↑ to move more quickly through the parameter values.

   In this example, note that the value for the second parameter (**Pid 1 SetPt**) has a box around it. This means you can edit it. If you touch this value, a numeric keypad screen displays.

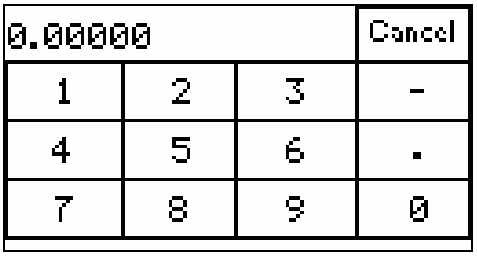

Figure 3-19. Numeric Keypad

   If appropriate, use the keypad to enter a new value for the indicated field. Touch **Done** to apply the edited value to the parameters screen.The Touchpad requires your confirmation before it applies any changes to the parameter values.

4. Touch **Exit** to display the User List menu.
5. Touch **Exit** to display the Touchpad Main Menu.

3.4 Meter Runs

You can define up to four meter runs for the FB107. You configure the number of valid meters on the Points tab on the Device Information screen (**ROC** > **Device Information**) and the meter information itself on the Meter Setup screen (**Meter** > **Setup**). Once you have defined and configured the meter runs using ROCLINK 800, you can use the Touchpad to view and change the information.

1. Touch **Meter Runs** on the Main Menu. The Meter Run menu displays.

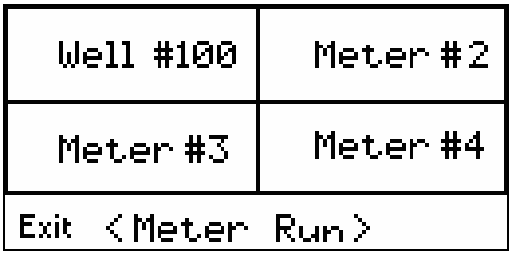

Figure 3-20. Meter Run Menu

2. Touch a meter run. An option screen displays. Note that the selected meter displays at the bottom of the screen.

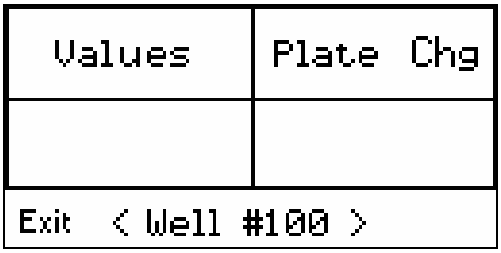

Figure 3-21. Meter Menu

Note: In this example, Well #100 is defined as using an orifice meter. The **Plate Chg** option displays **only** for orifice meters. For turbine meters, you see **only** the Values option.

3.4.1 Displaying Meter Information

Use this option to display meter information.

1. Touch **Values** on the Meter Run menu. The meter-specific parameters screen displays.

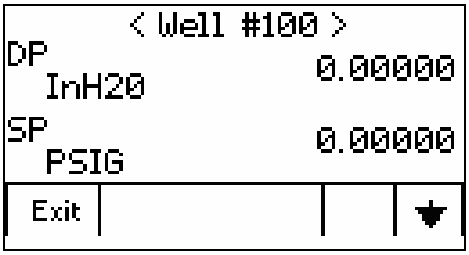

Figure 3-22. Meter Parameters

2. Touch ↓ or ↑ to scroll through a number of meter-specific parameters, including:

   - Differential pressure (orifice meters **only**)
   - Uncorrected flow (turbine meters **only**)

- Static pressure
- Temperature
- Flowrate
- Energy rate
- Flow today
- Energy today
- Alarms

3. Touch **Exit** to display the Meter Run menu.

3.4.2 Changing a Plate

Note: This option is available **only** for orifice meters.

Although you can also accomplish this process using the Plate Change screen in ROCLINK 800 (**Meter** > **Plate Change**), the Touchpad provides this function as a convenience for service technicians who may need to change orifice plates without access to ROCLINK 800.

1. Touch **Plate Chg** on the Meter Run menu. The Plate Change Menu displays.

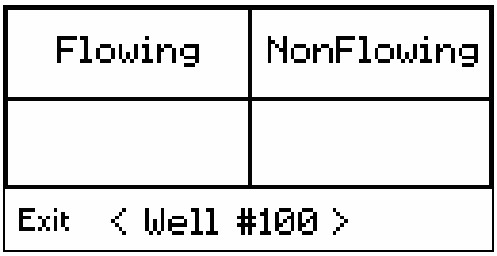

Figure 3-23. Plate Change Menu

2. Touch the condition under which the plate change occurs.

Note: If you select **Flowing**, the system freezes input values for the duration of the change to provide constant values to the flow calculations and displays a notification screen. When you exit this activity, the system restores the meter values.

3. The system then displays three parameter values screens.

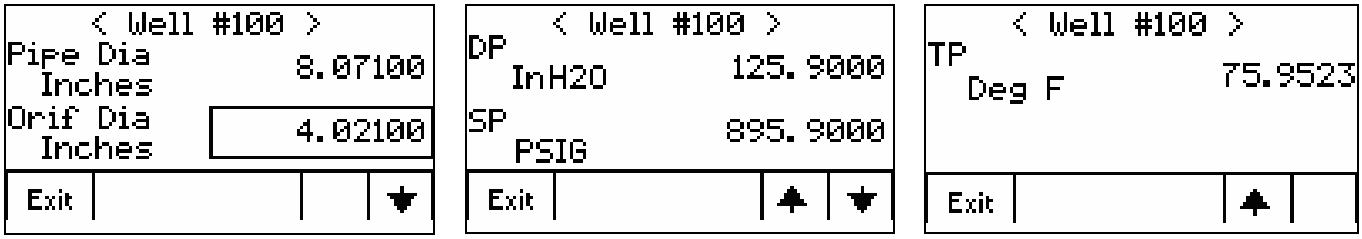

Figure 3-24. Plate Change Parameters

Note: You can edit the orifice diameter value. These parameter screens remain active for 30 minutes, after which the Touchpad displays the idle state screen.

4. Touch **Exit** to display the Plate Change menu screen.
5. Touch **Exit** to display the Meter menu.
6. Touch **Exit** to display the Meter Run menu.

3.5 Module Information

Use this option to view information for each module installed in the FB107. The Modules menu shows only the modules you have installed on your FB107. For example, *Figure 3-25* shows a fully equipped FB107 with expansion plate. If your FB107 has an open module slot, the Touchpad shows the slot number but does **not** include a module identifier. If your FB107 does not have an expansion plate, the Touchpad displays the second row (slots 4 through 7) but omits the numbers, indicating those slots are not available.

You can also use this menu to display information on meter runs (refer to *Section 3.5.5, Viewing Meter Information*) and to diagnose alarm conditions (refer to *Section 3.5.8, Calibrating a Point*).

3.5.1 Viewing I/O and Diagnostic Information

1. Touch **Modules** on the Main Menu. The Modules menu displays.

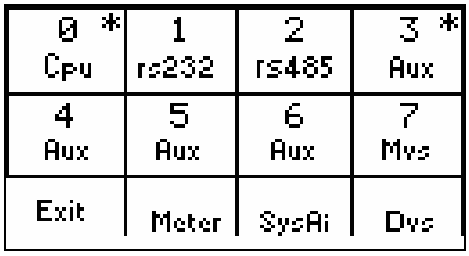

Figure 3-25. Modules Menu

Notes:
- A blinking asterisk (*) in the upper right corner of a module box (as in slots 0 and 3 in *Figure 3-25*) indicates an integrity or alarm issue in this module. This mirrors a blinking asterisk that may appear in the upper right corner of the Modules option on the Main Menu.
- The content of the Modules menu corresponds to your installed system. The example in *Figure 3-25* shows a fully loaded FB107.

2. Touch a module. The Touchpad displays a screen showing all the I/O points defined for that module (*Figure 3-26* shows the options for the CPU module).

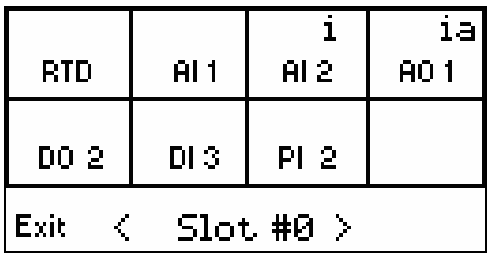

Figure 3-26. Module I/O Points

Note: A blinking **i**, **ia,** or **a** in the upper right corner of a point box (as in AI 2 and AO 1 in *Figure 3-26*) indicates an integrity or alarm issue with this point.

3. Touch an I/O point. The Touchpad displays a series of screens showing the parameters for that point.

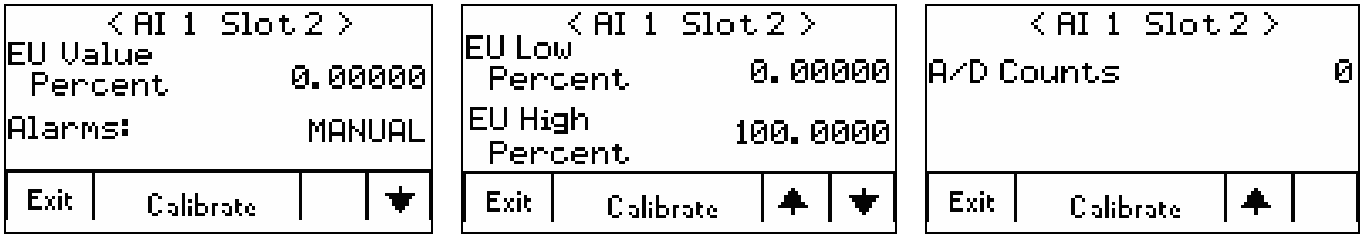

Figure 3-27. I/O Point Parameters

Note: The Touchpad places a box around any parameter value you can edit (as with AO or DO points). See *Figure 3-18.*

4. Review the points. To resolve an error condition (if one exists), use ROCLINK 800 to correct the situation.
5. Touch **Exit** to display the Module I/O Points screen.
6. Touch **Exit** to display the Modules Menu screen.

3.5.2 Viewing RTD Information

Use this option to review data on the CPU module's Resistance Temperature Detector (RTD).

1. Touch **Modules** on the Main Menu. The Modules menu displays.

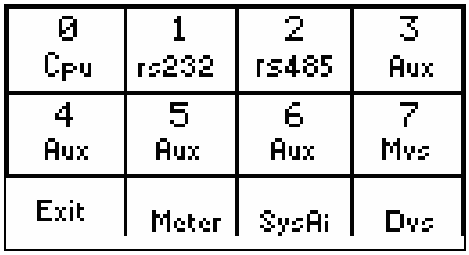

Figure 3-28. Modules Menu

2. Touch **Cpu**. An I/O points screen for the CPU module displays.

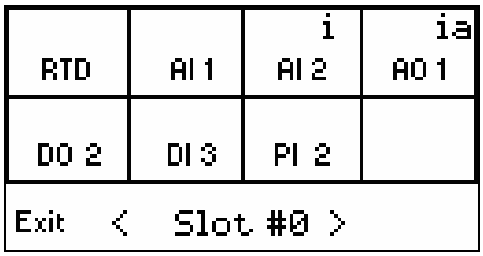

Figure 3-29. Module I/O Points

3. Touch **RTD**. A parameter screen for the RTD module displays.

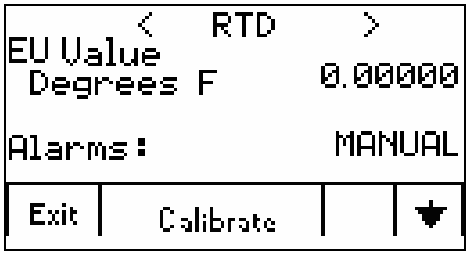

Figure 3-30. RTD Parameters

4. Touch ↓ or ↑ to view additional RTD parameter values.
5. Touch **Exit** to display the Module I/O Points screen.
6. Touch **Exit** to display the Module menu.

3.5.3 Viewing COMM Information

Your FB107 can have up to two communications modules (RS-232 or RS-485) which you must place in slots 1 or 2. Use this procedure to verify the status of these modules.

1. Touch **Modules** on the Main Menu. The Modules menu displays.

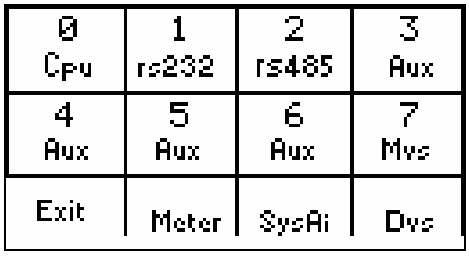

Figure 3-31. Modules Menu

2. Touch **rs232** or **rs485** (depending on which communications module you have installed). A status screen displays.

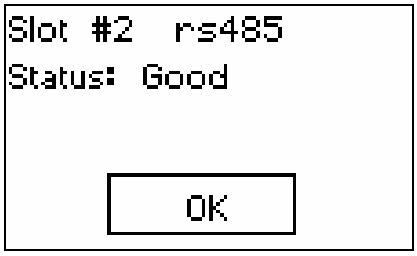

Figure 3-32. Communication Status

3. Touch **OK** to display the Modules menu.

3.5.4 Viewing Multiple Variable Sensor (MVS) Information

The FB107 supports up to six MVS transmitters. Use this option to review the parameters for each transmitter.

1. Touch **Modules** on the Main Menu. The Modules menu displays.

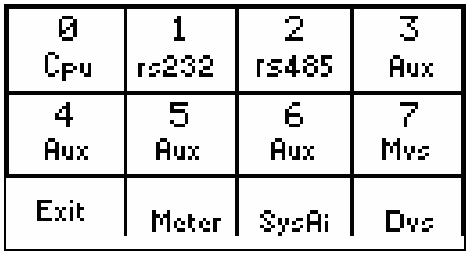

Figure 3-33. Modules Menu

2. Touch **Mvs**. The MVS menu displays.

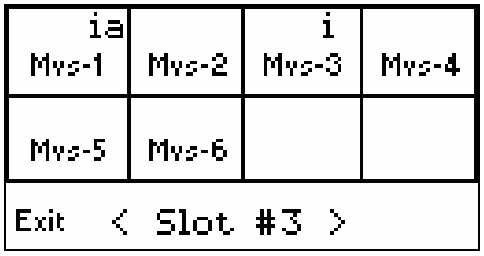

Figure 3-34. MVS Menu

Note: A blinking **i**, **ia**, or **a** in the upper right corner of an MVS box (as in **Mvs-1** and **Mvs-3** in *Figure 3-34*) indicates an integrity or alarm issue with this transmitter.

3. Touch a transmitter box. A parameter screen for the MVS transmitter displays.

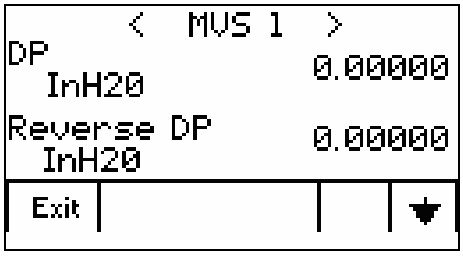

Figure 3-35. MVS Parameters

4. Touch ↓ or ↑ to view additional parameter values.
5. Touch **Exit** to display the MVS menu.
6. Touch **Exit** to display the Modules menu.

3.5.5 Viewing Meter Information

The FB107 supports up to four meters. Use this option to view flow rate and alarm information for each defined meter run.

1. Touch **Meter** on the Modules menu. The Meter Run menu displays.

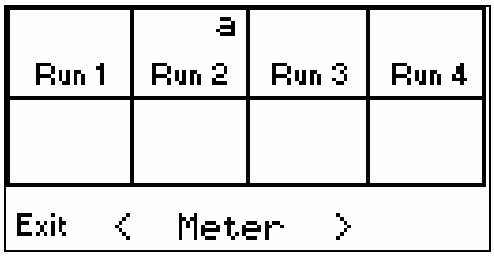

Figure 3-36. Meter Run Menu

Note: A blinking **a** in the upper right corner of a run box (as in **Run 2** in *Figure 3-36*) indicates an **active** alarm.

2. Touch a meter run. A parameter screen for the meter run displays.

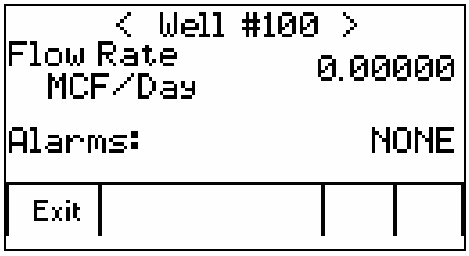

Figure 3-37. Meter Run Parameters

3. Touch **Exit** to display the Meter Run menu.
4. Touch **Exit** to display the Modules menu.

3.5.6 Viewing System Information

Use the **SysAI** option on the Modules menu to view the following information on the FB107's battery, charging status, and board temperature.

Battery	Charging	Board Temperature
▪ Volts	▪ Volts	▪ Degrees
▪ Alarms	▪ Alarms	▪ Alarms
▪ Low Volts	▪ Low Volts	▪ Low Degrees
▪ High Volts	▪ High Volts	▪ High Degrees
▪ A/D Counts	▪ A/D Counts	▪ A/D Counts

1. Touch **SysAi** on the Modules menu. The System AI menu displays.

Figure 3-38. System AI Menu

2. Touch an option. A parameters screen displays.

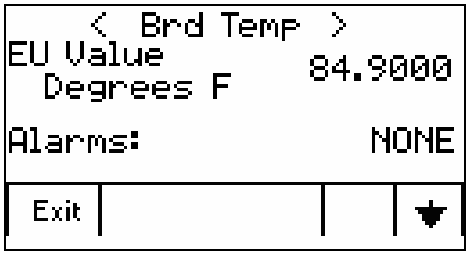

Figure 3-39. System AI Parameters

3. Touch ↓ or ↑ to view additional parameter values.
4. Touch **Exit** to display the System AI menu.
5. Touch **Exit** to display the Modules menu.

3.5.7 Viewing Dual Variable Sensor (DVS) Information

Use the **Dvs** option on the Modules menu to view the following differential or static pressure information:

Differential Pressure (DP)	Static Pressure (SP)
▪ Current Pressure	▪ Current Pressure
▪ Alarms	▪ Alarms
▪ Low Pressure	▪ Low Pressure
▪ High Pressure	▪ High Pressure
▪ A/D Counts	▪ A/D Counts

1. Touch **Dvs** on the Modules menu. The DVS menu displays.

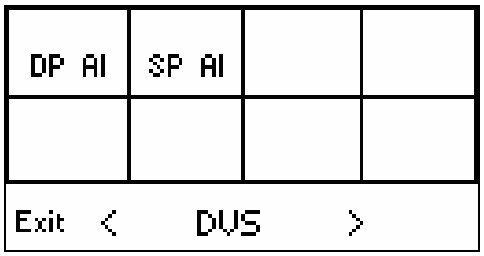

Figure 3-40. DVS Menu

> **Note**: A blinking **i**, **ia**, or **a** in the upper right corner of a run box indicates an integrity or alarm issue.

2. Touch an option. A parameters screen displays.
3. Touch ↓ or ↑ to view additional parameter values.
4. Touch **Exit** to display the DVS menu.
5. Touch **Exit** to display the Modules menu.

3.5.8 Calibrating a Point

In the process of troubleshooting an integrity error, you might find it necessary to calibrate or verify a point. Various screens (such as the AI parameter screen in *Figure 3-27* or the RTD parameter screen in *Figure 3-41*) provide **Calibrate** as an option.

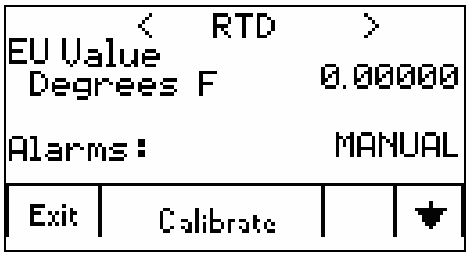

Figure 3-41. RTD Parameters

Note: Refer to *Chapter 8, Utilities*, in the *ROCLINK 800 Configuration Software User Manual (for FloBoss 107)* (A6217) for a complete discussion of both calibration and verification.

Calibrate

For calibration, you define a zero point, a span, and up to three midpoints. To calibrate a point:

1. Touch **Calibrate** on the parameter screen. The Touchpad displays the Calibrate menu.

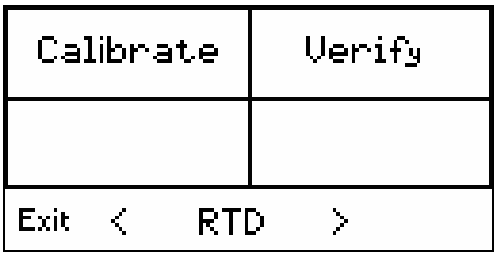

Figure 3-42. Calibrate Menu

Note: Whether you select **Calibrate** or **Verify**, ROCLINK 800 freezes the current value and displays a notification screen. When you exit the utility, ROCLINK 800 restores the live values.

2. Touch **Calibrate**. The Touchpad displays a message screen (starting the calibration and freezing the EU value) and then displays a parameter screen.

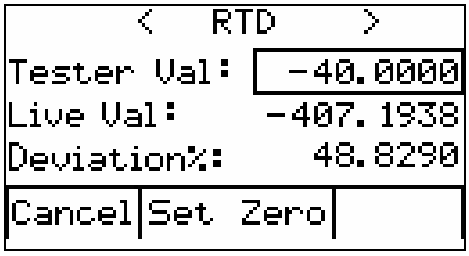

Figure 3-43. Set Zero Calibration Point

Note: You can touch the value displayed in the Tester Value field to edit it. The FB107 continues to update the Live Value field and calculate the deviation percentage.

3. Touch **Set Zero** when the displayed values are appropriate. The Touchpad prompts you to set a span point.

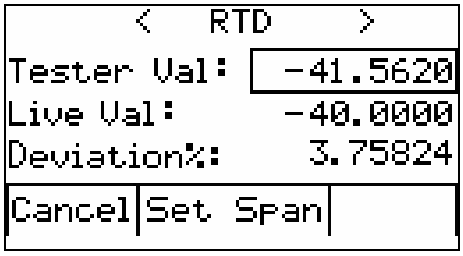

Figure 3-44. Set Span Calibration Point

Note: You can touch the value displayed in the Tester Value field to edit it. The FB107 continues to update the Live Value field and calculate the deviation percentage.

4. Touch **Set Span** when the displayed values are appropriate. The Touchpad prompts you to set the first of three calibration midpoints.

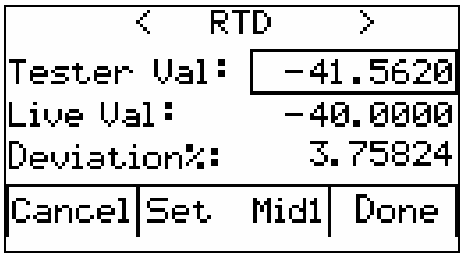

Figure 3-45. Set Midpoint 1 Calibration Point

Note: For calibrations, you can set up to three midpoints (the Touchpad presents a screen on which you can set each midpoint) or none at all by touching **Done**. You can also touch **Cancel** at any time to cancel the calibration.

5. When you touch **Done**, the Touchpad evaluates the calibration, displays a completion message indicating whether the calibration was successful, and displays the Calibrate menu.
6. Touch **Exit** to display the parameter screen from which you began the calibration.

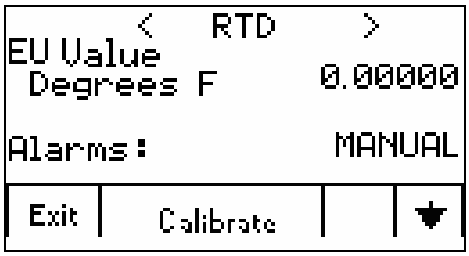

Figure 3-46. RTD Parameters

Verify To verify a point:

1. Touch **Verify** on the Calibrate menu. The Touchpad first displays a message screen (starting the verification and freezing the EU value) and then displays a parameter screen.

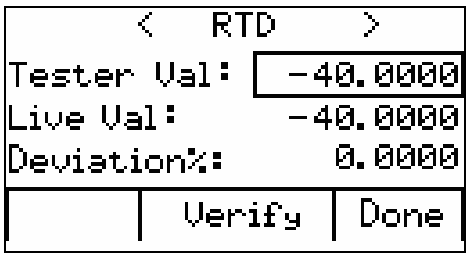

Figure 3-47. RTD Verification Parameters

2. Touch **Verify**. The Touchpad displays a message and generates an event for the event log.

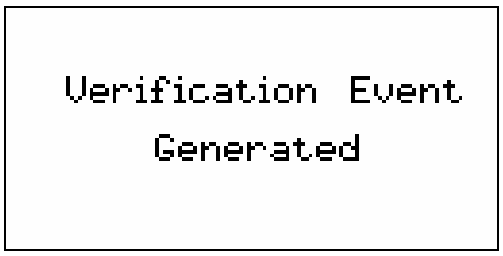

Figure 3-48. Verification Message Parameters

3. Monitor the relationship between the live and test values, touching **Verify** until you have enough events to ensure verification.

4. Touch **Done**. The Touchpad displays a completion message and then displays the Calibrate menu

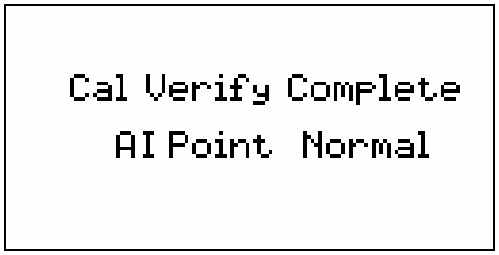

Figure 3-49. Verification Message Parameters

5. Touch **Exit** on the Calibrate menu to display the parameter screen from which you began the calibration.

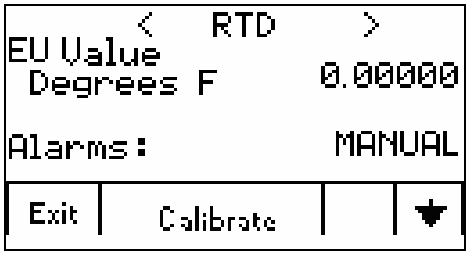

Figure 3-50. RTD Parameters

3.6 Charts

Use this option to display historic or dynamic FB107 information in a chart format. You must first use the ROCLINK 800 LCD User List – Chart screen (**Configure** > **LCD User List** > **Chart**) to define up to 16 points for charting (see *Figure 3-51*).

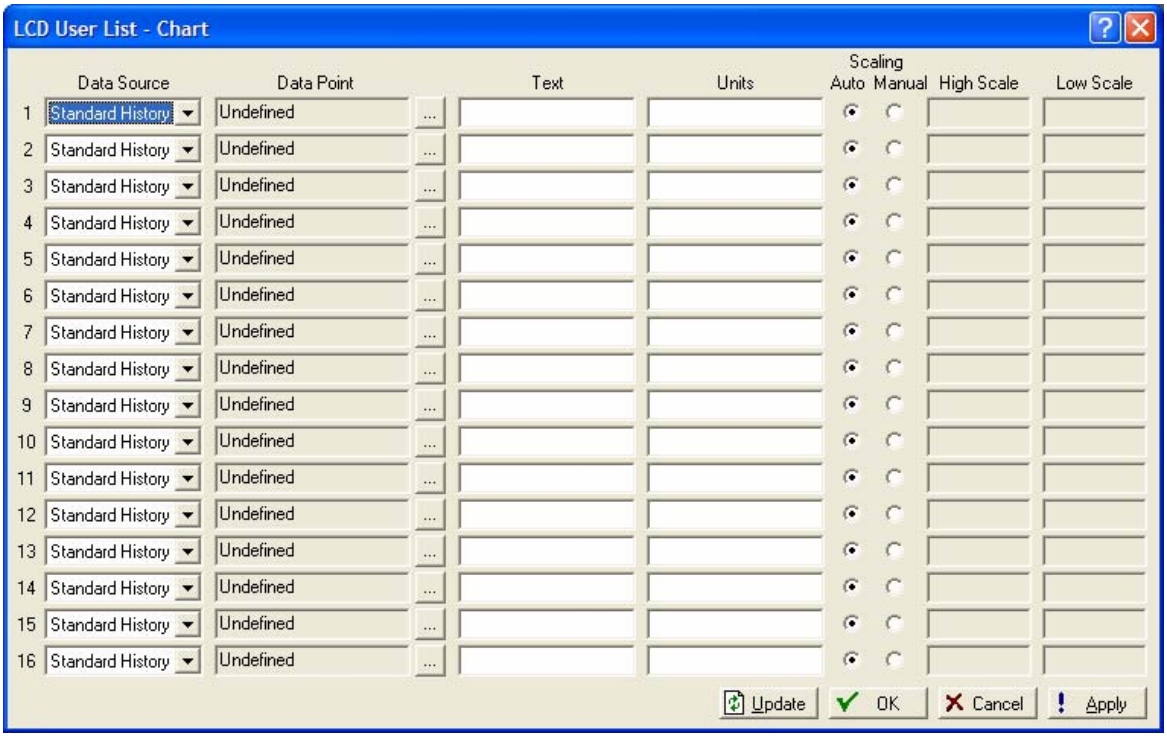

Figure 3-51. LCD User List – Chart

Note: Refer to *Chapter 7* in the *ROCLINK 800 Configuration Software User Manual (for FloBoss 107)* (A6217) for complete instructions on configuring this screen.

Once you have configured the points on this screen, you can view them on the Touchpad.

Touch **Chart** on the Modules menu. The Chart menu displays.

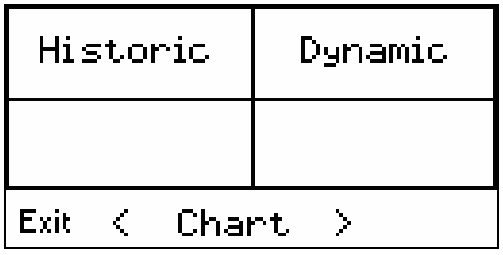

Figure 3-52. Chart Menu

3.6.1 Viewing Historical Data

Use this option to view defined historical data points you have defined on the LCD User List – Chart screen.

1. Touch **Historic** on the Chart menu. The History menu displays.

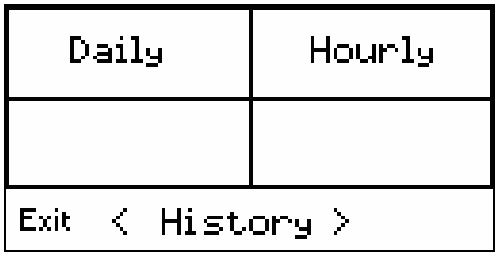

Figure 3-53. History Menu

Note: This menu enables you to view historical data either on an hourly or daily basis. The menu options on the subsequent screens are the same.

2. Touch **Daily** on the History menu. The Daily History menu displays.

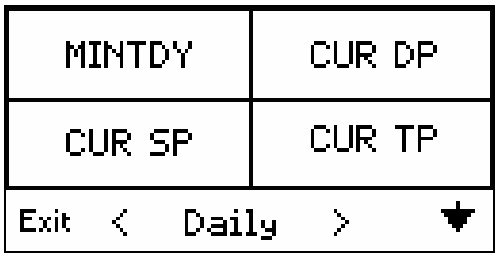

Figure 3-54. Daily History Menu

3. Touch an option on the Daily History menu. A history charting screen displays.

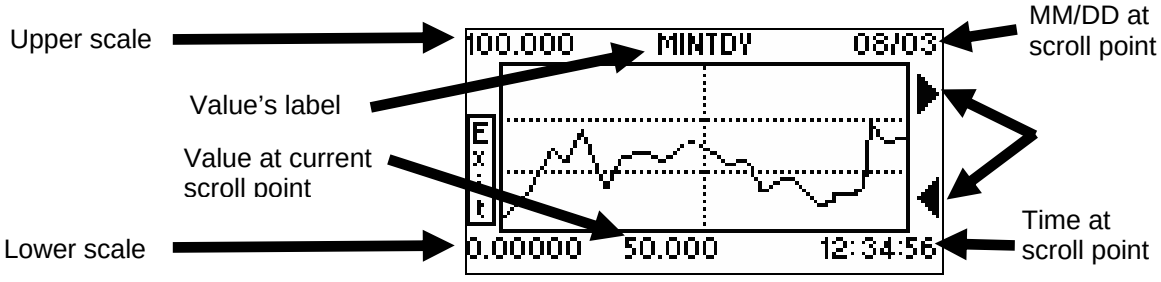

Figure 3-55. History Chart

The vertical dotted line indicates the current point on the historical record. The arrows on the right side of the chart allow you to scroll forward (▶) or backward (◀) on the historical record (up to 60 days,

as defined on the ROCLINK 800 History Setup screen's Setup tab). Touch an arrow once to move in daily (or hourly) steps; touch and hold an arrow to "fast scroll" through the chart.

The date for the current scroll point appears in the upper right-hand corner of the screen. The time for the current scroll point appears in the lower right-hand corner of the screen. The value for the current scroll point appears in the lower middle of the screen. The label for the value appears in the upper middle of the screen, and alternates with the units for that label every four seconds.

4. Touch **Exit** to display the Daily History menu.
5. Touch **Exit** to display the History menu.
6. Touch **Exit** to display the Chart menu.
7. Touch **Exit** to display the Modules menu.

3.6.2 Viewing Dynamic Data

Use this option to view dynamic data points you have defined on the LCD User List – Chart screen.

1. Touch **Dynamic** on the Chart menu. The Dynamic Data menu displays.

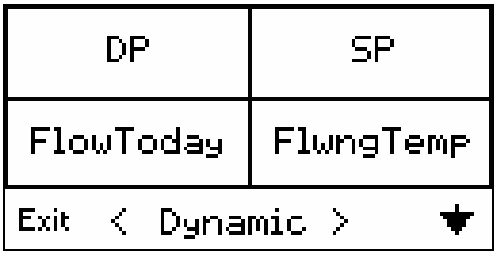

Figure 3-56. Dynamic Data Menu

Note: The titles on the Dynamic Data menu items correspond to what you have used–or entered–in the Text field on the LCD User List – Chart screen. You can define as many as 16 Dynamic points. The Touchpad configures each defined point as a menu option. You can touch ↓ or ↑ to display additional menu options.

2. Touch a selection on the Dynamic Data menu. A dynamic charting screen displays.

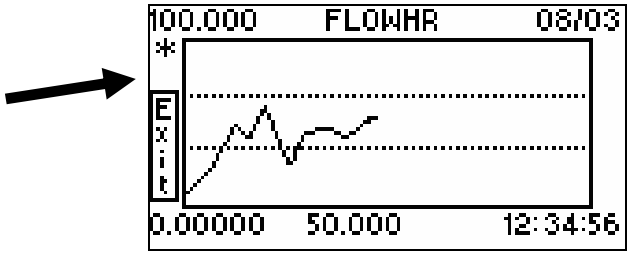

Figure 3-57. Dynamic Chart

Each chart can display up to 54 most recent data values. The Touchpad alternates the chart header (here, FLOWHR) with the EU value (MCF), if units are available. The asterisk on the screen indicates that you can set the upper and lower scale values for the display.

3. Touch the asterisk to set new upper and lower scale values. The Touchpad displays two screens, in sequence.

Set Upper Range			Cancel
1	2	3	-
4	5	6	.
7	8	9	0

Set Lower Range			Cancel
1	2	3	-
4	5	6	.
7	8	9	0

Figure 3-58. Upper and Lower Scale Ranges

4. Use each screen to enter a new upper and new lower range for the display, if necessary. The Dynamic Chart displays.
5. Touch **Exit** to display the Dynamic Data menu.
6. Touch **Exit** to display the Chart menu.
7. Touch **Exit** to display the Modules menu.

3.7 PID Loops

This option provides two methods—basic and advanced—for displaying and changing Proportional, Integral, and Derivative (PID) loops. You can define up to eight PID loops on an FB107.

Note: Use the Points tab on the ROCLINK 800 Device Information screen (**ROC** > **Information**) to define the total number of active PID loops; use the PID Loop screen (**Configure** > **Control** > **PID Loop**) to initially define the PID loops.

To use this option, touch **PID** on the Main Menu. The PID menu displays.

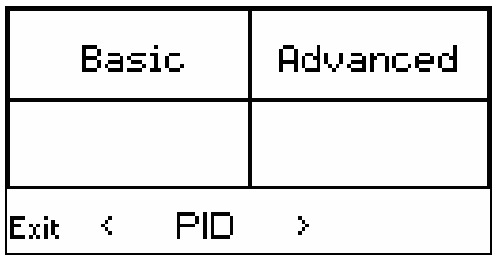

Figure 3-59. PID Menu

The Basic method accesses a series of parameter screens you use to establish primary and override process variables and setpoints. The Advanced method accesses a single graphical screen that use you perform the same tasks.

3.7.1 Setting Basic PID Loops

Use this option to access a series of parameter screens to establish the PID process variables and setpoints.

1. Touch **Basic** on the PID Menu. The PID Loop menu displays.

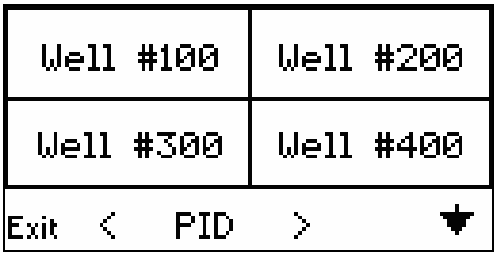

Figure 3-60. PID Loop Menu

2. Touch a PID loop on the PID Loop menu. The PID Parameters menu displays.

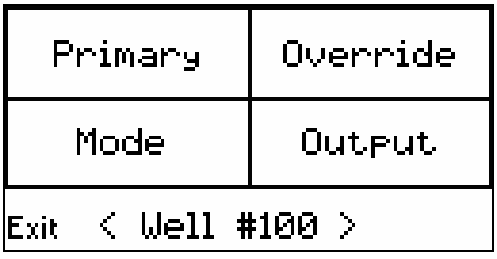

Figure 3-61. PID Parameters Menu

Use these four options – Primary, Override, Mode, and Output – to refine PID parameters for each defined PID loop. You can modify individual parameters or (as in this example) proceed through each screen in sequence.

3. Touch **Primary**. The Primary PID Loop Parameters screen displays.

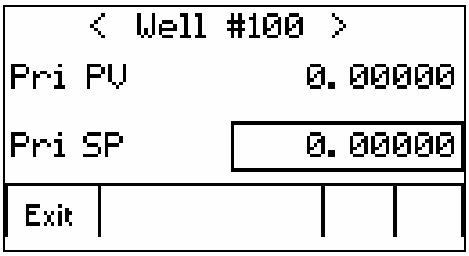

Figure 3-62. Primary PID Loop Parameters

Use this screen to display the primary process variable and redefine (if necessary) the primary setpoint.

4. Touch **Exit** to display the PID Parameters menu.
5. Touch **Override**. The Override Parameters screen displays.

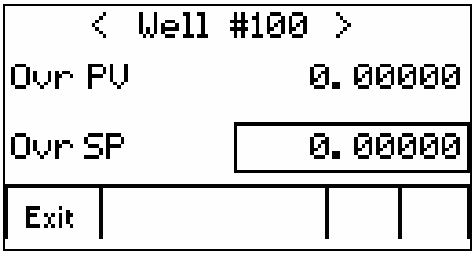

Figure 3-63. Override PID Loop Parameters

Use this screen to display the override process variable and redefine (if necessary) the override setpoint.

6. Touch **Exit** to display the PID Parameters menu.
7. Touch **Mode** to display the PID Mode screen.

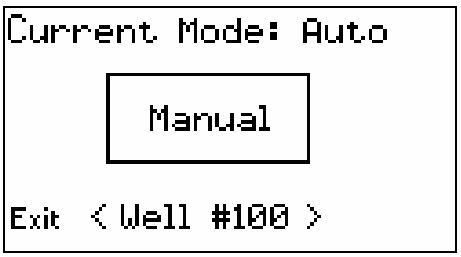

Figure 3-64. PID Mode

Use this screen to switch the PID Control mode between Automatic and Manual.

8. Touch **Exit** to display the PID Parameters menu.
9. Touch **Output** to display the PID Output screen.

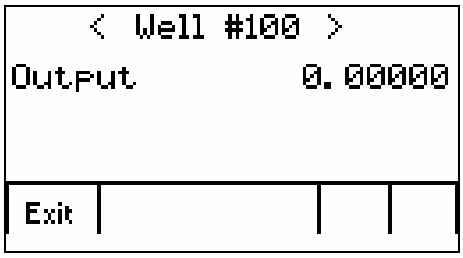

Figure 3-65. PID Output

Use this screen to review the current output for the PID loop.

10. Touch **Exit** to display the PID Parameters menu.
11. Touch **Exit** to display the PID Loop menu.
12. Touch **Exit** to display the PID Menu.

3.7.2 Setting Advanced PID Loops

Use this option to access a graphic display (and supporting screens) that enables you to quickly review and adjust PID parameters.

1. Touch **Advanced** on the PID menu. The PID Loop menu displays.

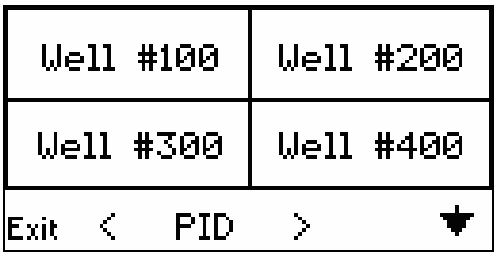

Figure 3-66. PID Loop Menu

2. Touch a PID loop on the PID Loop menu. The graphical PID Loop displays.

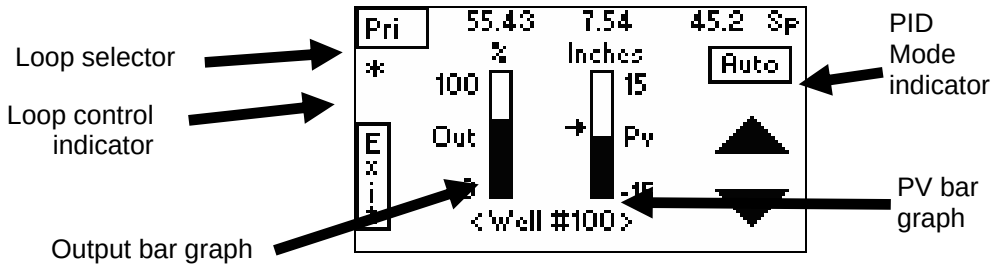

Figure 3-67. Graphical PID Loop

This display provides a "dashboard" view of the selected PID loop. The left vertical bar graph represents the output value for the PID loop; the right bar graph represents the process variable value for the loop. Units for each bar graph display at the top of each graph. The upper and lower EU values for each bar graph display at the top and bottom of the graph. This is a dynamic display: as the output or PV values change, the graphic changes.

Touch the Output or PV vertical bar graph to access charts that display these values.

Touch ▲ or ▼ to modify the output or setpoint, depending on the PID loop's current mode (Auto or Manual, indicated by the boxed value in the upper right corner of the display). If the PID mode is Manual, the buttons change the output parameter. If the PID mode is Automatic, the buttons change the PID setpoint. Touch and release a button to change the value by one percent; touch and hold the button down to more quickly change the value.

To change the PID mode (from Auto to Manual or Manual to Auto), touch and hold down the Auto/Man value for **two** seconds. The green Key Acknowledgement light blinks, indicating that the value has changed. This two-second touch prevents you from accidentally changing the PID mode. The indicator arrow on the bar graph also moves, indicating which value you can now change.

The upper right corner of the display indicates whether the Touchpad is displaying information from the PID loop's Primary or Override control loop. Touch this field to switch between the loops. (This is an option only if you have selected Override Control as the Control Type on the General tab on the PID Loop screen in ROCLINK 800.) An asterisk (*) in the upper left corner of the graphic indicates whether the selected loop is in control.

3. Touch **Exit** to display the PID Loop menu.
4. Touch **Exit** to display the PID menu.

3.8 System Information

This option enables you to view a variety of system information, adjust system parameters, and perform common tasks.

- System Information.
- Saving a configuration.
- Perform a warm start.
- Forcing end-of-day processing.
- Adjust Touchpad contrast.

To use this option, touch **System** on the Main Menu. The System menu displays.

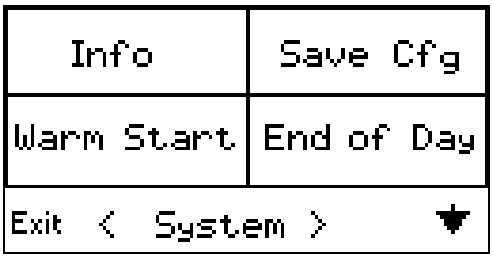

Figure 3-68. System Menu

Each of these options is discussed in detail below.

3.8.1 Displaying System Information

Use this option to display pertinent system information, including:

- Time and date
- ROC Name
- Firmware revision
- LCD revision
- Device address
- Device group
- Contract Hour
- CPU Load

1. Touch **Info** on the System menu. The System Parameters screen displays.

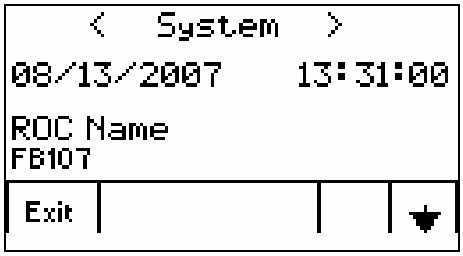

Figure 3-69. System Parameters

2. Touch ↓ and ↑ to display various system parameters.

Note: You can change the Contract Hour parameter. Also, you can touch the CPU Load option to display a chart of the current CPU load.

3. Touch **Exit** to display the System menu.

3.8.2 Saving a Configuration

Use this option to save the currently active FB107 configuration to Flash memory.

1. Touch **Save Cfg** on the System menu. The Save Configuration menu displays.

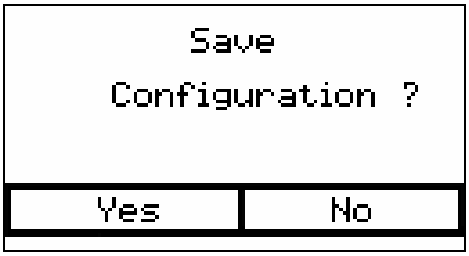

Figure 3-70. Save Configuration Menu

2. Touch **Yes**. The Touchpad displays a confirmation message.

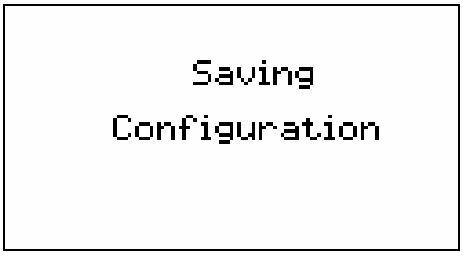

Figure 3-71. Confirmation Message

3. The Touchpad then displays the System menu.

3.8.3 Performing a Warm Start

Use this option to warm start the system from the Touchpad.

1. Touch **Warm Start** on the System menu. The Warm Start menu displays.

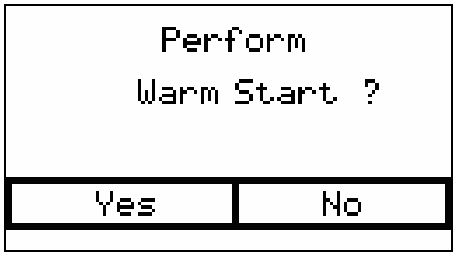

Figure 3-72. Warm Start Menu

2. Touch **Yes**. The Touchpad displays a confirmation message.

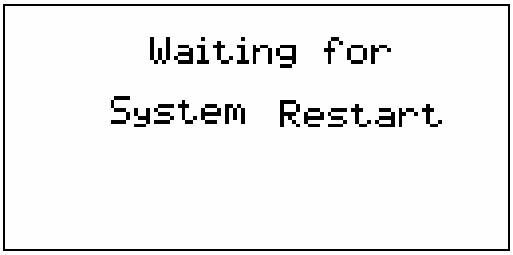

Figure 3-73. Confirmation Message

3. When the warm start completes, the Touchpad displays the default idle state display.

Figure 3-74. Idle State Display

Note: After a warm start, you must log onto the Touchpad again.

3.8.4 Forcing End of Day

Use this option to force end-of-day processing from the Touchpad.

1. Touch **End of Day** from the System menu. The Force End of Day menu displays.

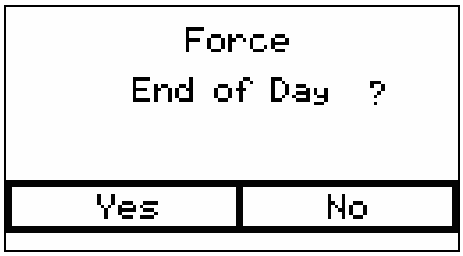

Figure 3-75. Force End of Day Menu

2. Touch **Yes**. When the end of day processing completes, the Touchpad displays a confirmation message.

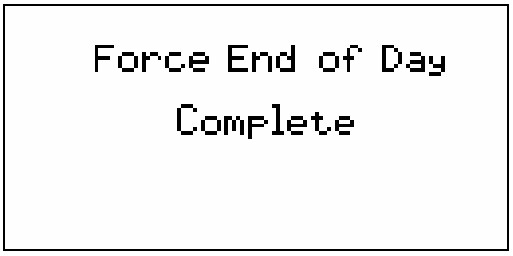

Figure 3-76. Confirmation Message

3. The Touchpad then displays the System menu.

3.8.5 Adjusting Touchpad Contrast

Use this option to adjust the displayed brightness of the Touchpad. The FB107 stores the contrast value in a section of Flash memory that is protected from firmware upgrades.

1. Touch **Contrast** on the System menu. The Contrast Control Parameters screen displays.

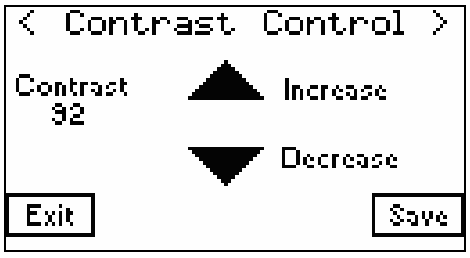

Figure 3-77. Contrast Control Parameters

2. Touch ▲ or ▼ to increase or decrease the contrast on the Touchpad. The current contrast value (limited between 110 and 86) displays below the Contrast label.

   Note: Above 110 the Touchpad contrast becomes too dark; below 86 the contrast is too light.

3. Touch **Save** to place the current contrast setting in protected Flash memory. The Touchpad displays a confirmation message.

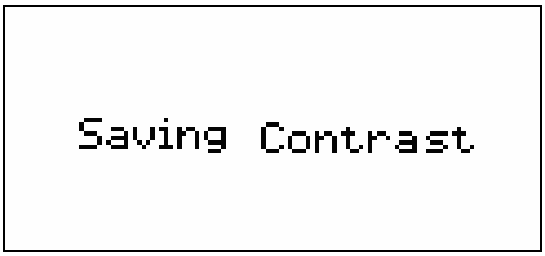

Figure 3-78. Confirmation Message

4. Touch **Exit** to display the System menu.

3.9 Logging Off

This option enables you to immediately log off the system.

Touch **Log off** from the Main Menu. The Touchpad immediately displays the idle state screen.

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If you have comments or questions regarding this manual, please direct them to your local sales representative or contact:

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